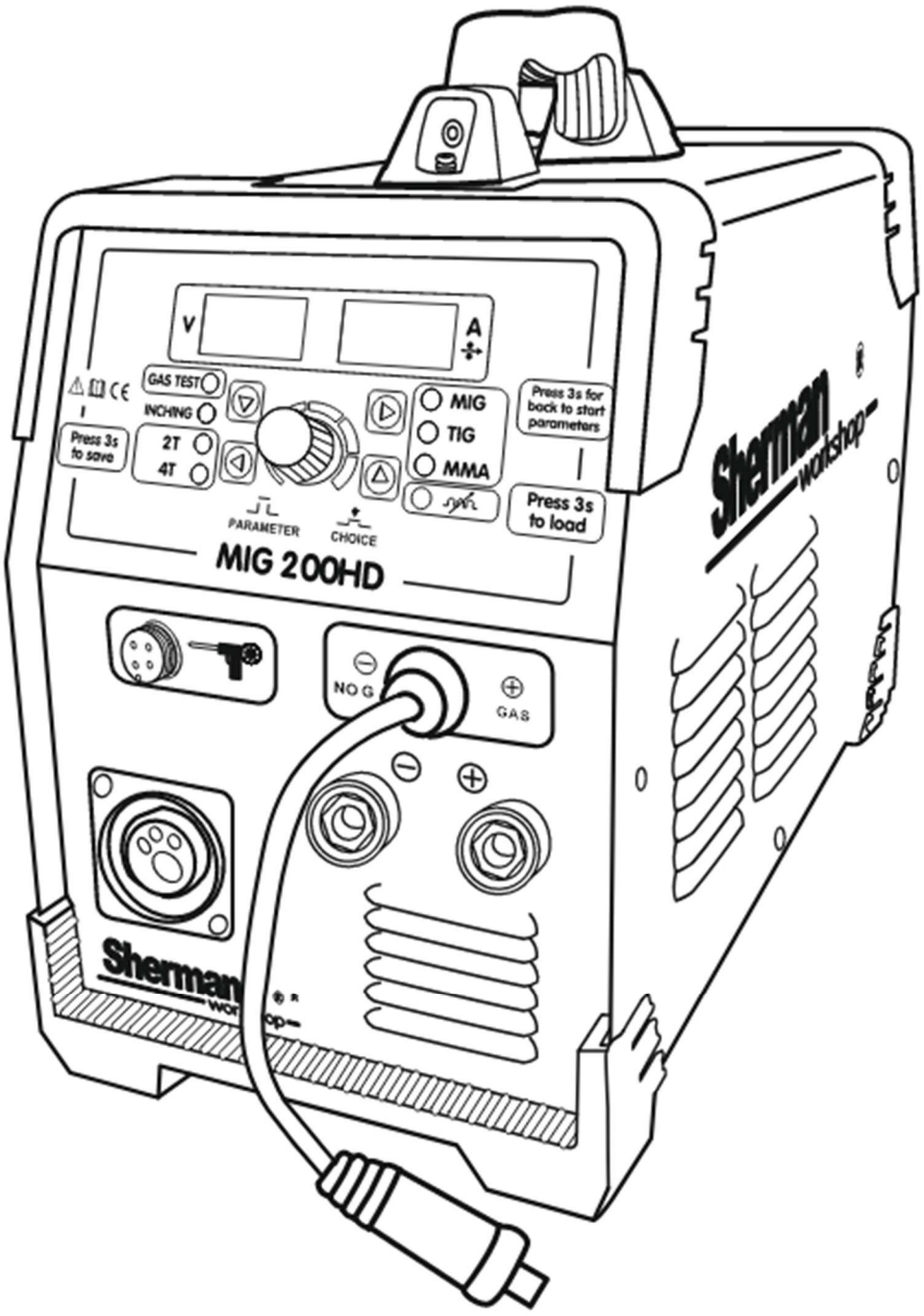
Sherman

V1.10 08.09.26

USER MANUAL

INVERTER SYNERGIC SEMI-AUTOMATIC WELDING MACHINE MIG 200HD



CE



ATTENTION!
Before installing and starting the appliance, please refer to this manual

1. GENERAL COMMENTS

The device can only be commissioned and operated after carefully reading these Operating Instructions.

Due to the continuous technical development of the device, the external appearance and some of its functions may be modified and their operation may differ in detail from the descriptions in the manual and on the cardboard. This is not a fault of the device, but the result of progress and continuous modification work of the device. The standard equipment of the device may also change.

Damage to the device caused by improper operation will void your warranty rights.
Any modifications to the welder are prohibited and will void the warranty.

2. SAFETY

Employees operating the device should have the necessary qualifications to perform welding work:
- they should have an electric welder license in the field of welding in gas shields,
- know the health and safety rules in the operation of electric power equipment, such as welding equipment and auxiliary equipment powered by electricity,
- know the rules of health and safety when operating cylinders and installations with compressed gas (argon),
- Be familiar with the contents of this manual and operate the appliance for its intended purpose.



WARNING



Welding can endanger the safety of the operator and other people in the vicinity. Therefore, special precautions should be taken when welding. Before welding, you should familiarize yourself with the health and safety regulations of the workplace.
The following hazards exist during MIG/MAG electric welding:
- **ELECTRIC SHOCK**
- **NEGATIVE EFFECTS OF THE ARC ON HUMAN EYES AND SKIN**
- **VAPOR AND GAS POISONING**
- **BURNS**
- **EXPLOSION AND FIRE HAZARDS**
- **NOISE**

Electric shock prevention:
- connect the device to a technically efficient electrical system with proper protection and zeroing efficiency (additional protection against electric shock); check and correctly connect other devices at the welder's workplace to the network,
- install power cables when the device is switched off,
- Do not touch the non-insulated parts of the electrode holder, electrode and welded object at the same time, including the device housing,
- do not use torch and power cords with damaged insulation,
- in conditions of particular risk of electric shock (work in environments with high humidity and closed tanks), work with an assistant supporting the welder's work and watching over safety, use clothing and gloves with good insulating properties,
- if you notice any irregularities, you should contact competent people to remove them,
- It is forbidden to operate the device with the covers removed.

Preventing the negative effects of the electric arc on the eyes and skin of a person:
- Wear protective clothing (gloves, apron, leather shoes),
- Use protective shields or visors with a properly selected filter,

- Use protective curtains made of non-flammable materials and properly choose the colors of the walls that absorb harmful radiation.

Prevention of poisoning by vapours and gases emitted during welding from the electrode coating and metal evaporation:

- Use ventilation devices and exhausts installed in positions with limited air exchange,
- Blow fresh air when working in confined spaces (tanks),
- Use masks and ventilators.

Burn prevention:

- Wear appropriate protective clothing and footwear to protect against burns caused by arc radiation and spatter,
- Avoid staining the garment with greases and oils that may lead to its inflammation.

Explosion and fire prevention:

- It is forbidden to operate the device and weld in rooms at risk of explosion or fire,
- The welding station should be equipped with fire-fighting equipment,
- The welding station should be located at a safe distance from flammable materials.

Preventing the negative effects of noise:

- Use earplugs or other noise protection equipment,
- Warn of danger to people nearby.



WARNING!

Do not use a power source to defrost frozen pipes.

Before starting the device, you should:

- Check the condition of the electrical and mechanical connections. It is forbidden to use torch and power cables with damaged insulation. Improper insulation of torch and power cables may result in electric shock,
- Take care of proper working conditions, i.e. ensure proper temperature, humidity and ventilation in the workplace. Protect against precipitation outside closed spaces,
- Place the welder in a place that allows it to be easily operated.

Welding machine operators should:

- have a license for electric welding using the MIG/MAG process,
- know and comply with health and safety regulations applicable when performing welding work,
- use appropriate, specialized protective equipment: gloves, apron, rubber shoes, welding shield or visor with a properly selected filter,
- Know the contents of this instruction manual and operate the welding machine as intended.

Any repairs to the appliance may only be carried out by unplugging the plug from the power socket.
When the appliance is connected to the mains, it is not allowed to touch any components that make up the welding current circuit with your bare hand or through damp clothing.
It is forbidden to remove the external covers when the device is plugged in.
Any modifications to the welder on your own are prohibited and may impair safety conditions.
All maintenance and renovation work may only be carried out by authorized persons in compliance with the occupational safety conditions applicable to electrical equipment.
It is forbidden to operate the welding machine in rooms with a risk of explosion or fire!
The welding station should be equipped with fire-extinguishing equipment.
When you have finished working, the power cord of the appliance must be unplugged.

The hazards and general OHS rules presented above do not exhaust the issue of welder's work safety, as they do not take into account the specifics of the workplace. They are an important complement to on-the-job OHS instructions and training and instruction provided by supervision employees.

3. GENERAL DESCRIPTION

The MIG 200HD synergic welding machine is used for manual welding of steel and non-ferrous metals. It allows welding using MMA (coated electrode), TIG Lift, and MIG/MAG processs in synergic and manual modes. Thanks to the change of polarity, the device allows you to weld using the MIG/MAG process using both standard shielded gas wires and self-shielding powder wires.
The device allows you to connect a Spool Gun (SG) with a mini wire feeder and a D100 spool of steel or colored wire. The inductance adjustment allows you to solder thin galvanized elements. The built-in synergy system allows less experienced users to select welding parameters
The welding machine has built-in automatic HOT START and ANTI STICK functions, and it also allows you to remember 20 sets of settings for the MIG process.
The device is made in IGBT technology, which allows for a significant reduction in the weight and dimensions of the welding machine and an increase in efficiency while reducing energy consumption.
The welding machine is used in closed or covered rooms, not exposed to direct atmospheric influences.

4. TECHNICAL PARAMETERS

4.1 Welding Machine

Supply Voltage:	AC 230V 50Hz
Maximum power consumption:	6.6 kVA
Rated Welding Current:/ Duty Cycle	MIG: 200A / 45%; MMA: 180A / 60%; TIG: 180A / 60%
Rated no-load voltage	65 V
Wire spool diameters:	100mm, 200mm
Maximum power consumption:	MIG: 33 A; MMA: 33 A; TIG: 24 A
Network Security:	25A
Weight:	10.5 kg
Dimensions [mm]:	450 x 210 x 330
Degree of protection:	IP21

4.1.1 Parameter control ranges

Welding Current:	MIG: 30 – 200 A; MMA: 20 – 180 A; TIG: 20 – 200 A
Welding Voltage:	MIG: 15.5 – 24 V
Wire Feeding Speed:	2 – 15 m/min
Inductance:	1 – 10

4.2 MIG Torch

Torch Type:	TW-15
Maximum current carrying capacity:	200 A (CO2)
Cooling Type:	gas
Cooling Gas Flow:	10-18 l/min
Length:	3 m

Duty cycle
The duty cycle is based on a 10-minute period. A 45% duty cycle means that a 5.5-minute break is required after 4.5 minutes of operation of the machine. A 60% duty cycle means that a 4-minute break is required after 6 minutes of operation of the machine. A 100% duty cycle means that the unit can operate continuously, without interruptions.
Attention! The heating tests were carried out at the ambient air temperature. The duty cycle at 20ºC was determined by simulation.

Degree of protection
IP determines the degree to which the device is resistant to the ingress of solid and water contaminants. IP21 means that the device is suitable for indoor use.

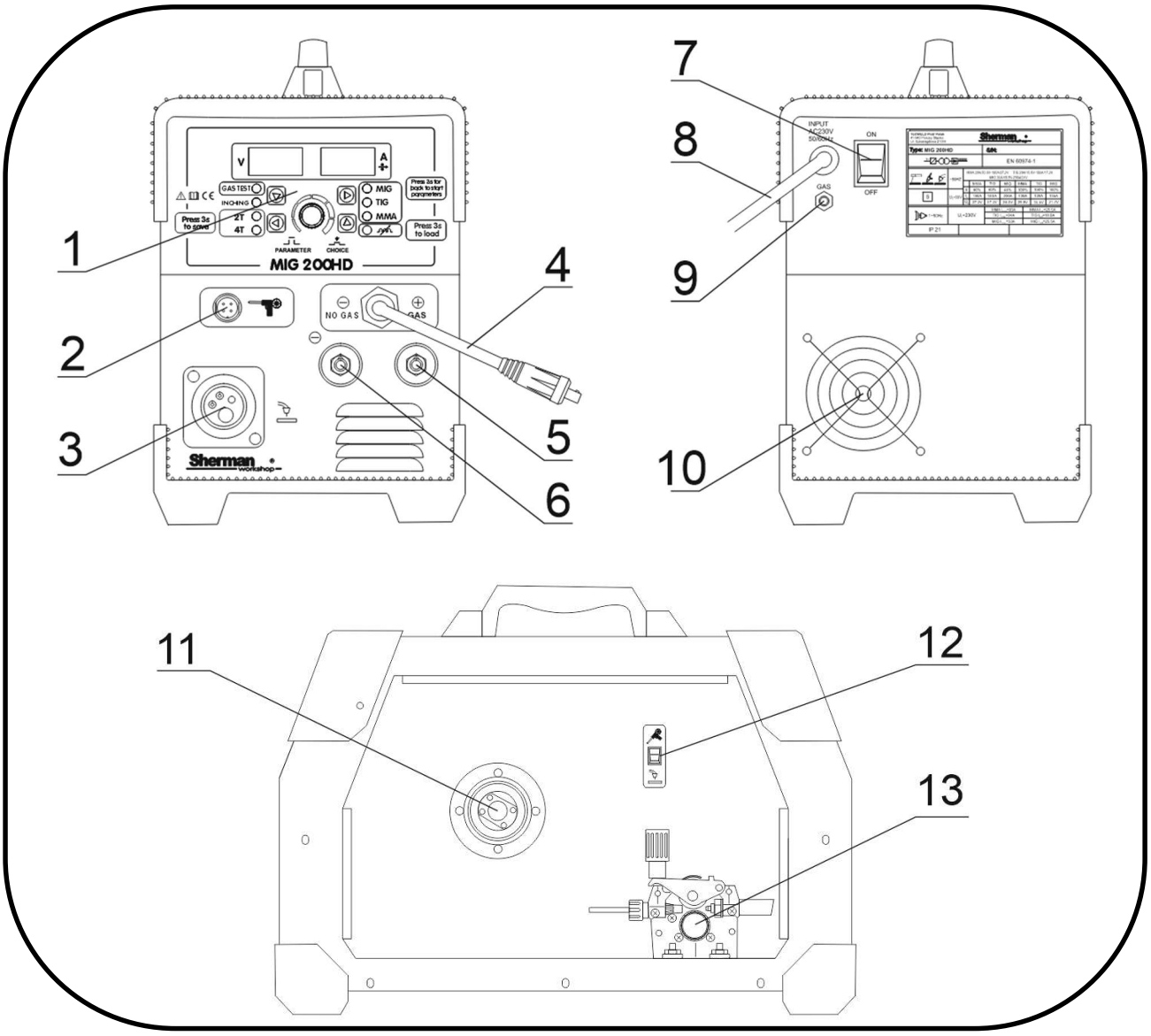
Overheating protection
The IGBT module is protected from overheating by a protective system that switches off the welding circuit of the device. After a few minutes, the welding machine is cooled down to a temperature that allows it to be switched on again. Do not disconnect the power supply during this time, as the continuously running fan cools the internal heat sinks of the device in order to reduce the temperature faster. After restarting, remember to limit the welding parameters in order to continue to operate the device continuously.

HOT START function
The function is popularly called hot start. It works when the arc is ignited, causing a temporary increase in the welding current above the value set by the welder. HOT START is designed to prevent the electrode from sticking to the material and is a great facilitator of the arc ignition.

ANTI STICK function.
This function reduces the welding current to a minimum value when the electrode is glued to the weld material. This makes it easier to detach the electrode from the weld material and protects the welder from damage.

5. PREPARING THE DEVICE FOR OPERATION

If the device is stored or transported in freezing conditions, bring the device to a temperature above zero before starting work.

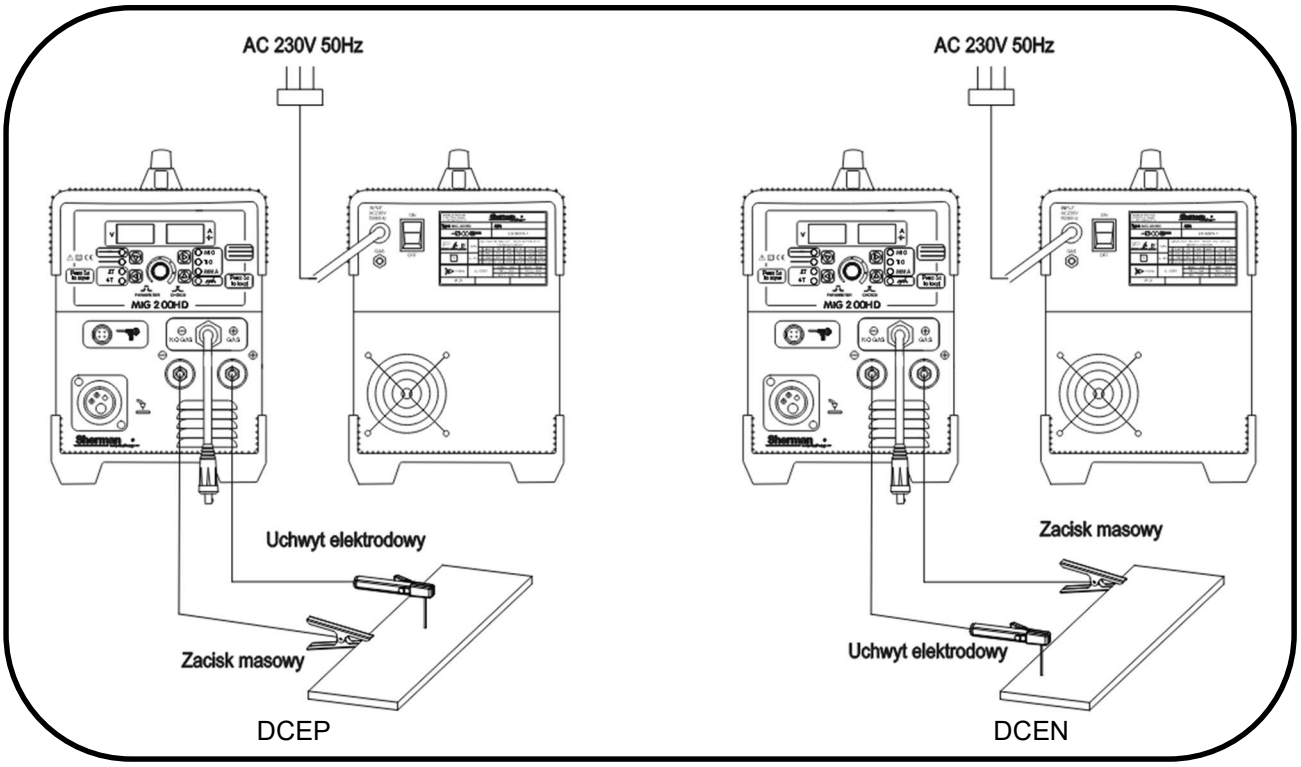


1. Control Panel
2. Remote Control/Spool Gun Socket
3. MIG Torch Socket
4. Polarity change plug
5. "+" socket
6. Socket "-"
7. Power Switch
8. Power cord
9. Shielding gas inlet fitting
10. Fan
11. Wire spool hub
12. Spool Gun Torch Switch
13. Wire feeder

5.1 Connecting the Wires

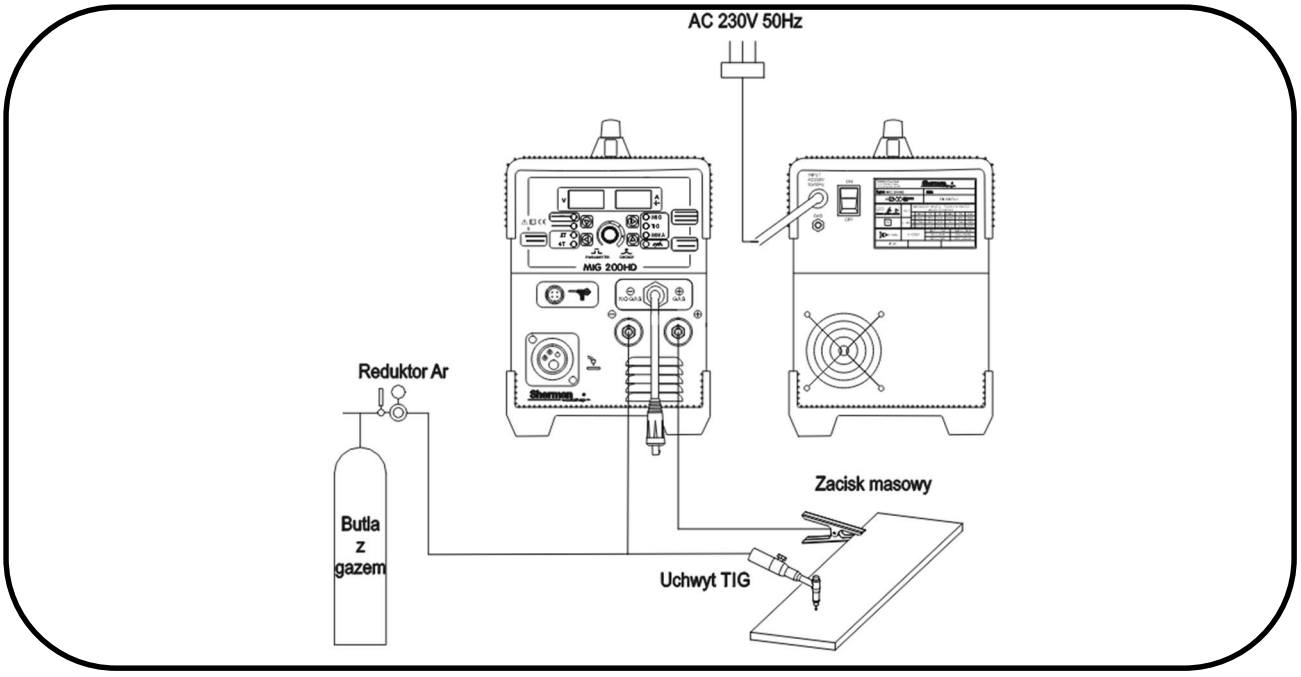
5.1.1 MMA process

Connect the ends of the welding wires to the sockets (5) and (6) on the faceplate so that the electrode holder has the correct pole for the electrode. The polarity of the connection of the welding wires depends on the type of electrode used and is indicated on the electrode packaging (DCEN negative polarity or DCEP positive polarity). The ground wire terminal must be carefully fixed to the welded material. Connect the appliance plug to a 230V 50Hz mains socket.



5.1.2. TIG process

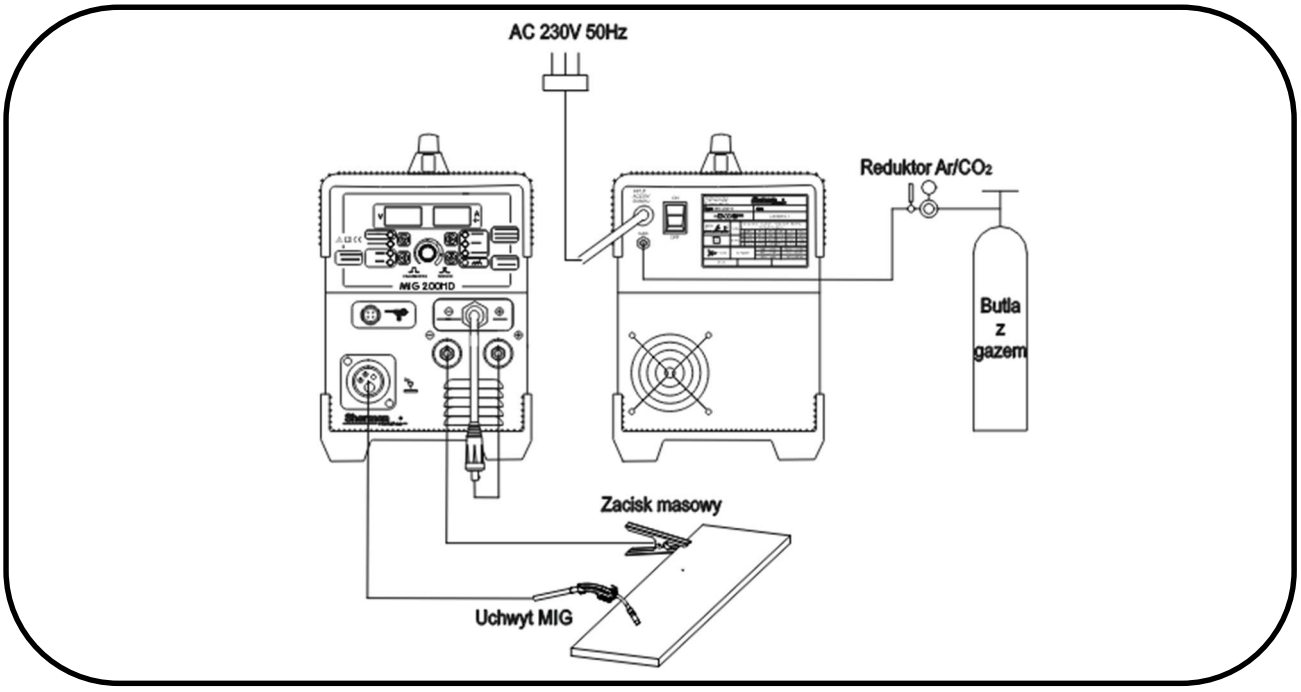
An additional TIG torch is required for welding with this process. A gas-cooled torch with a current capacity of 200A is required, equipped with a shielding gas control valve.
Connect the current terminal of the torch to the negative bias socket (6) and the gas line to the gas regulator on the gas cylinder. Connect the positive pole of the source (5) to the welded material using a clamp cable. Connect the appliance plug to a 230V 50Hz mains socket.



5.1.3 MIG Process and Brazing

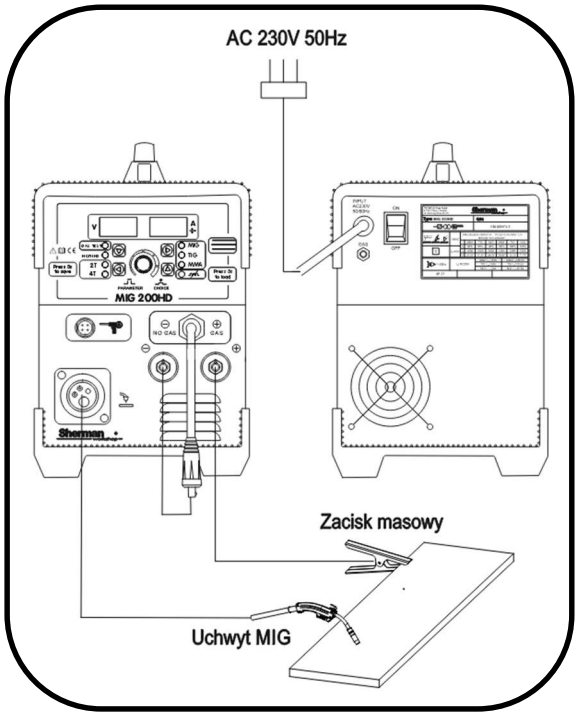
5.1.3.1 Shielded Gas Welding and Brazing

Connect the current plug of the torch to the MIG socket (3). Route the gas hose from the gas regulator and attach it to the gas connector (9) on the rear wall of the appliance. Place the polarity change plug (4) in the socket (5). Connect the negative pole of the source (6) to the welded material using a clamp cable. Switch the switch (12) inside the feeder chamber to the position of the standard MIG torch ( ). Connect the appliance plug to a 230V 50Hz mains socket.



5.1.3.2 Welding with steel self-shielding wire

Connect the current plug of the torch to the MIG socket socket (3). Place the polarity change plug (4) in the socket (6). Connect the positive pole of the source (5) to the welded material using a clamp cable. Switch the switch (12) inside the feeder chamber to the position of the standard MIG torch ( ). Connect the appliance plug to a 230V 50Hz mains socket.



5.1.3.3 Spool Gun Welding (Optional)

Connect the current plug of the torch to the MIG socket (3). Place the polarity change plug (4) in the + socket (5). Connect the negative pole of the source (6) to the welded material using a clamp cable. Switch the switch (12) inside the feeder chamber to the  (Spool Gun) position. Connect the torch control plug to the socket (2). Connect the appliance plug to a 230V 50Hz mains socket.

5.2 Shielding Gas Connection

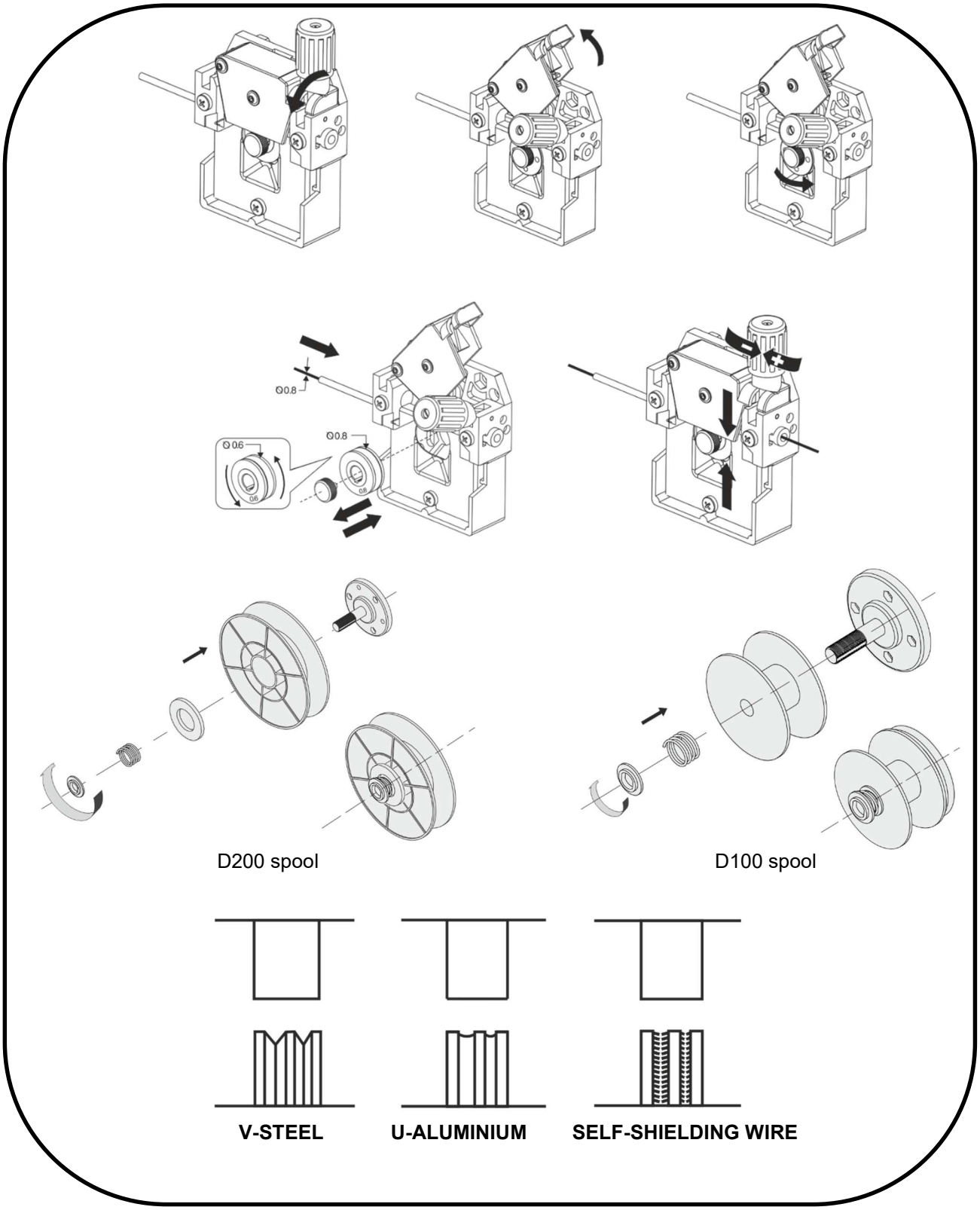
1. Secure the gas cylinder from tipping over.
2. Unscrew the cylinder valve for a moment to remove any debris.
3. Install the gas regulator on the cylinder.
4. Connect the gas regulator to the gas connector (9) on the back of the welding machine with a hose.
5. Unscrew the cylinder and gas regulator valve.

5.3 Connecting to the power supply

1. The appliance should only be used in a single-phase, three-wire, grounded zero point power supply system.
2. The MIG 200HD inverter rectifier is designed to work with a 230V50 Hz network protected by 25 A delay-acting fuses. The power supply should be stable, without voltage drops.
3. The appliance is equipped with a power cord and plug. Before connecting the power supply, make sure that the power switch (7) is in the OFF position.

5.4 Fitting the Electrode Wire Spool

1. Open the side cover of the case.
2. Check that the drive rollers are suitable for the type and diameter of the wire. If necessary, fit the correct roller. Use V-grooved rollers for steel wires and U-grooved rollers for aluminum wires.
3. Place the electrode wire spool on the mandrel.
4. Protect the spool from falling.
5. Release the pressure of the feed rollers.
6. Blunt the end of the electrode wire.
7. Feed the wire through the feeder drive roller into the holder.
8. Press the wire into the grooves of the drive roller.
9. Remove the contact tip from the holder, turn on the power to the welder, and pull the wire into the welder torch using the INCHING quick wire extension function.
10. When the wire appears in the outlet of the torch, release the button and screw on the power tip.
11. Adjust the pressure force of the feeder roller by turning the pressure knob. Too little clamping force will result in the drive roller slipping, too much clamping force will increase the feeding resistance, which may lead to wire deformation and damage to the feeder.



5.5 Preparing the MIG Torch for Operation

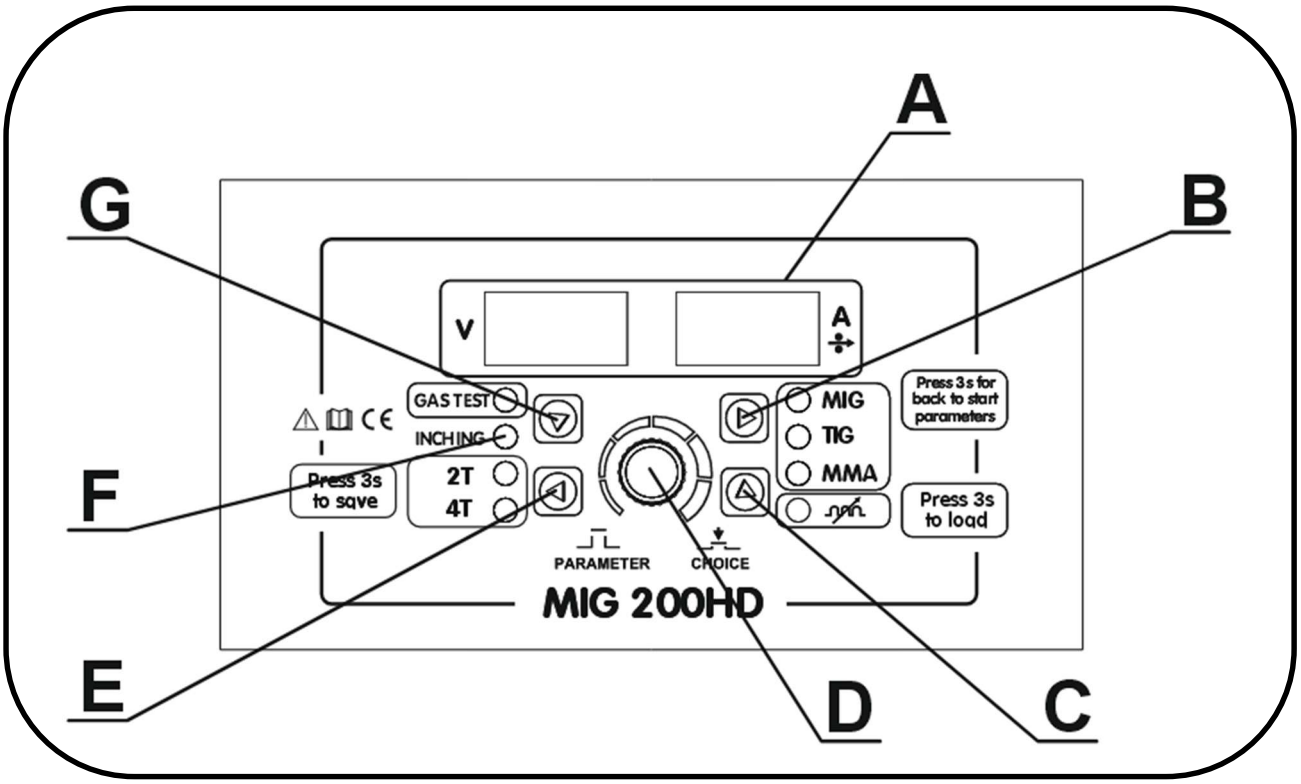
Depending on the type of material to be welded and the diameter of the electrode wire, fit the appropriate current terminal and wire guide insert to the MIG torch.
For steel welding, use steel welding current terminals and a steel insert. For aluminum welding, use aluminum welding current terminals and a Teflon cartridge.

5.5.1 Quick wire extension

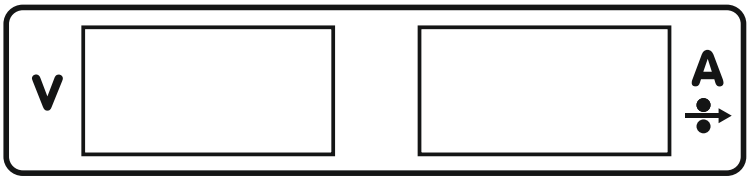
The device has a quick wire ejection function. Pressing the button in the torch for 3 seconds causes a quick extension of the wire for easy insertion into the torch. After 6 seconds, the feeder returns to the standard speed.

6. OPERATION

6.1 Front Panel

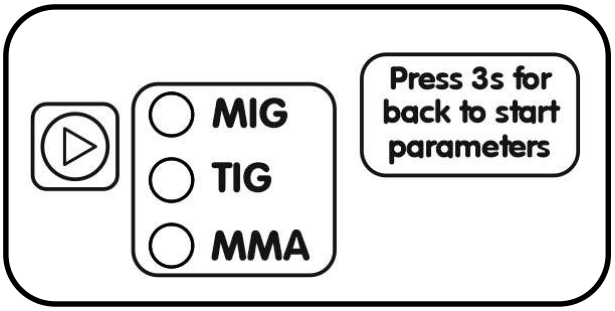


A – Display assembly



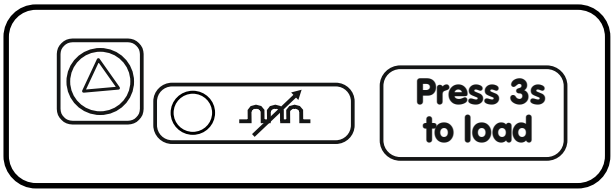
The displays indicate the parameter values. The left display indicates the welding voltage, inductance or the number of the set of parameters to be stored/stored. The right display indicates the welding current. If the displayed parameter flashes, it can be adjusted using the knob (D).

B – Welding process selection button



The button is used to select the welding process. A short press of the button changes the process. The LED on indicates the currently selected welding process.
During MIG welding, pressing the button for 3 seconds will return to the initial parameters.

C – Inductance adjustment / setting charging button

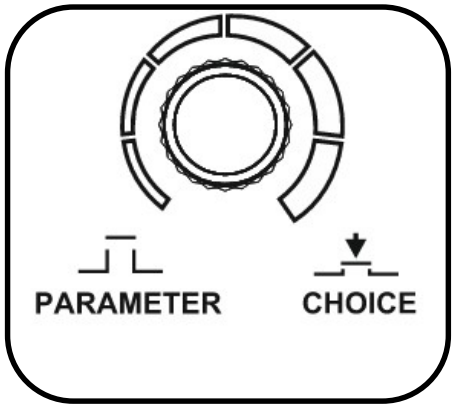


A short press of the button will proceed to the inductance adjustment using the knob (D). Once the desired value has been set, press the button (C) again or wait about 3 seconds.

Pressing the button for about 3 seconds will enter the charging mode of the previously saved parameters. The number of the parameter set that will be loaded will flash on the left display. The number can be changed by turning the knob (D). Pressing the button (C) again will load the parameters.

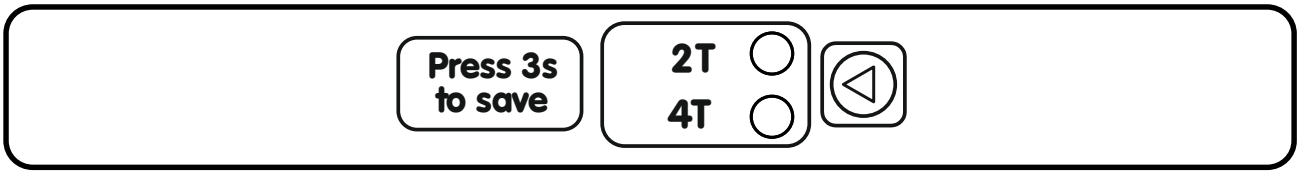
Inductance control allows you to optimize the arc characteristics depending on the thickness of the welded component and the welding process and conditions. This function is useful when welding thin components with the MIG/MAG process, preventing them from burning, and when brazing galvanized components.
A change in the inductance value also reduces the atorch of welding spatter during welding in a CO2 shield. The optimal setting of the inductance value depends on several factors and may differ from the standard recommendations, so it should be selected experimentally during welding tests.
Adjusting this parameter also makes it possible to solder thin (up to 3 mm) elements galvanized with wires made of copper alloy CuSi3 in a sheath of pure argon or, in some cases, an Ar/CO2 mixture in a ratio of (82/18).
Adjustment range: 1 – 10.

D – Adjustment knob/button



The knob is used to adjust the welding parameters. Turning the knob to the left decreases and turning to the right increases the parameter value. After selecting the MIG process, pressing the knob switches between adjusting the welding voltage and current.

E – Source control / save settings button



The button is active only during MIG/MAG welding. It is used to select the control mode of the welding machine (two-stroke / four-stroke) and save the settings.
A short press of the button selects the control mode of the device. The selected control mode is confirmed by the corresponding LED lighting up.
Pressing the button for about 3 seconds will enter the save mode of the set parameters.
A number will flash on the left display, under which the currently set set parameter set will be stored. The number can be changed by turning the knob (D). Pressing the button (E) again will save the parameters. It is possible to save 20 sets of parameters.

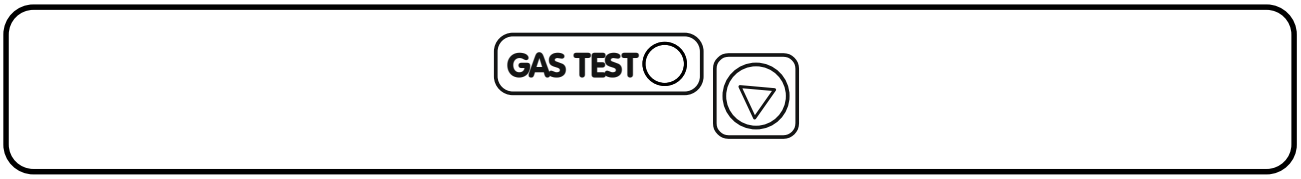
2T In two-stroke mode, pressing the switch in the torch of the torch will ignite the arc. Welding is carried out with the switch pressed. Releasing the switch will end the welding.
4T In four-stroke mode, pressing the switch in the torch of the torch will ignite the arc, then release the switch and weld with the switch released. Pressing the switch again will end welding.

F – Quick wire extension



Pressing the button in the torch of the torch for more than 3 seconds causes the electrode wire to be ejected quickly. It can be used when installing a spool of wire to quickly feed it into the welding torch. After 6 seconds, the feeder speed will return to the standard value.

G – GAS TEST button



The button is active only during MIG/MAG welding. It is used to check the outflow of shielding gas. Pressing the button starts the gas outflow, releasing it closes the gas outflow.

7. PARAMETER SETTINGS

7.1 MMA process

After selecting the MMA process, it is possible to adjust the welding current.

7.2 TIG Lift Process
After selecting the TIG Lift process, it is possible to adjust the welding current.

7.3 MIG Process
After selecting the MIG process, the user can take advantage of synergic parameters of welding carbon steel with the option of manual regulation of welding voltage and current. It is also possible to adjust the inductance and control mode of the device (2T/4T).

After switching on the device, it is possible to synergically select the voltage and the corresponding welding current using the knob (D). The wire feed speed will be automatically adjusted to the set welding current. After the initial setting of these parameters, it is possible to manually correct both the welding voltage and the welding current. The transition between the adjustable parameters is made by pressing the knob (D). To return to the synergic initial parameters, press the button (B) for 3 seconds.

Device Control Mode (2T/4T)
In two-stroke mode, pressing the switch in the torch of the torch will ignite the arc. Welding is carried out with the switch pressed. Releasing the switch will end the welding.
In four-stroke mode, pressing the switch in the torch of the torch will ignite the arc. Then release the switch and weld with the switch released. Pressing the switch again will end welding.

Inductance control
Inductance control allows you to optimize the arc characteristics depending on the thickness of the welded component and the welding process and conditions. This function is useful when welding thin components with the MIG/MAG process, preventing them from burning, and when brazing galvanized components.
A change in the inductance value also reduces the atorch of welding spatter during welding in a CO2 shield. The higher the inductance value (+) the number of spatters decreases, when the value is negative (-), the number of spatters increases. The optimal setting of the inductance value depends on several factors and may differ from standard recommendations, so it should be selected experimentally during welding tests.
Adjusting this parameter also makes it possible to solder thin (up to 3 mm) elements galvanized with wires made of copper alloy CuSi3 in a sheath of pure argon or, in some cases, an Ar/CO2 mixture in a ratio of (82/18).

7.3.1 Parameter Selection Recommendations

Argon of high quality class should be used: recommended 4.8 and higher
In addition, depending on the operating conditions, the inductance value can be set, which affects the shape of the weld, the depth of penetration and the atorch of spatter during welding.

Soldering
Using the three welding parameters, the optimal set should be set to obtain the right weld. When selecting the parameters, low voltage values and high wire feed speeds should be chosen. 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 to be welded.
Copper-based binders are most often used as an additional material. These are wires marked as CuSi3 or SG –CuAl.
It is recommended to use a torch with a length of no more than 3 m equipped with a Teflon insert.

7.4 Memory Settings

The device has a memory of the last settings, i.e. after switching off and on again, the last set parameters are restored. In order for the settings to be remembered, you must not change any of the parameters for at least a minute. It is also possible to remember 20 sets of parameters for the MIG process.

8. WELDING OF ALUMINUM ALLOYS

Welding aluminum is not a simple activity, it requires experience, knowledge and certain practices from the welder that will facilitate the execution of welds on aluminum elements. Depending on the needs, appropriate voltage and inductance adjustments should be made to achieve the desired effect.
First of all, it is important to remember about a few important things that significantly affect the appearance of the weld and affect the correct course of the welding process.
Before starting welding work on aluminum components, the following steps should be performed:

Device:
- Make sure that the feed rollers are designed to work with aluminum: the groove is "U" shaped and is dedicated to the correct diameter of the welding wire. Using the wrong rollers will cause wire deformation and problems in the welding process.
- Make sure that the feed rollers are not positioned too tightly. Excessive wire tension may cause a feeding problem.
- Make sure the chuck is equipped with a Teflon guide cartridge designed for aluminum. Using steel components used to feed the steel wire will cause feeding problems.
- Make sure the contact tip is the correct size and is designed for aluminum wire
- It is worth replacing the wire guide insert in the feeder with a Teflon version, which improves wire feeding as it does in the welding torch.

Job position:

- Attention should be paid to the proper preparation of the welding site: the hall should be clean, have good ventilation and low air humidity should be maintained. The presence of iron oxide dust or dust after electro-air gouging of steel is unacceptable.
- Aluminum welding stations should be vacuumed with industrial vacuum cleaners once a day, after work.
- Welders' clothes should be clean, gloves must not be greasy.

Material preparation:

- The welding site should be cleaned and degreased just before welding,
- Degrease the aluminium elements by wiping them 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 aluminium).
- Remove the residue of heavy oxides before welding. Normally, this is done manually or mechanically with a steel wire brush. If the material has been heavily contaminated, it may be necessary to use a grinder.
- Once the surface has been properly prepared, the welding process should be carried out as quickly as possible.
- If the part has to remain unwelded for a long period of time, it must be protected with brown kraft paper and covered with adhesive tape.

Proper storage of welding wire

- Aluminum welding wire should be stored in a clean, dry environment, preferably in its original packaging.
- The wire does not need to be stored in air-conditioned rooms, it is best to store it in low humidity conditions. Do not soak the wire in water.
- If a wire that is relatively cold is brought into the room on a hot, humid day and opened immediately, it is possible that the humid air will pollute the wire. Therefore, when storing the wire in an air-conditioned room, remember not to unpack the wire until it is heated and adapted to the ambient temperature.
- When the work is complete, the wire should be removed from the feeder and secured in a plastic bag for the next use.

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

10. ARC INITIATION

10.1 MMA process

1. Touch the electrode to the welded material, rub briefly and scratch lightly and lift away.
2. In the case of arc initiation with electrodes, the coating of which forms 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.

10.2 TIG Process

1. Unscrew the valve in the TIG torch to allow the shielding gas to escape.
2. Lightly touch the welded material with the electrode, detach the electrode from the welded material by tilting the torch so that the gas nozzle touches the material.
3. Once the arc is ignited, straighten the torch and start welding.

10.3 MIG/MAG Process

1. Bring the torch closer to the welded workpieces so that the distance between the nozzle and the welded workpieces is approx. 10 mm.
2. Press the button on the welding torch and start welding.

11. CAUSES OF IMPROPER WORK

Symptoms	Cause	Procedure
Lack of power, malfunction signal, or malfunction of the device	No connection or loose plug inside the device	Check and correct the connections of all electrical plugs inside the device
No electrode wire feeding (feeder motor running)	Too little roller pressure	Set the correct pressure
	Incorrect diameter of guide roller groove	Fit the correct guide roller
	Contaminated chain in the torch	Clean the electrode wire guide
	Blocked electrode wire in the contact tip	Replace the current adapter
No electrode wire feeding (feeder motor not running)	Device switched to Spool Gun mode	Switch the machine to standard MIG torch mode using the switch (12) in the feeder chamber
Irregular electrode wire feed	Damaged current terminal	Replace the current adapter
	The groove of the feed roller is dirty or damaged	Clean the roller groove or replace the roller
	The wire spool rubs against the walls of the welding machine cover	Fix the wire spool correctly
The arc does not ignite	Lack of proper contact of the ground cable terminal	Improve the contact of the ground terminal
	Damaged switch in MIG torch	Replace the switch
	Improper connection of the MIG torch to the device	Check the condition of the electrical connections of the torch, check that the pins in the socket are not broken or jammed
Arc too long and irregular	Welding Voltage Too High	Reduce welding tension
	Wire feed speed too low	Increase wire feed speed
Arc too short	Welding Voltage Too Low	Increase welding tension
	Wire feed speed too high	Reduce wire feed speed
When the power is turned on, the displays and LEDs do not light up	No supply voltage	Check the fuses on the mains connection
Fan not working	The fan has been blocked by a bent cover	Straighten the fan cover
Unsatisfactory weld quality in MIG welding	Inadequate or poor-quality materials or consumables used,	Replace consumable parts. Change welding wire or gas cylinder to suitable or higher quality materials
	The shielding gas comes out with the wrong intensity.	Check the gas supply hose, improve the hose connection to the fittings and the condition of the quick connectors Check Cylinder Gas regulator
Unsatisfactory weld quality in MMA welding, the electrode sticks to the welded material	Incorrect polarity of the connection of welding cables	Connect the welding wires correctly
	Damp electrode.	Replace the electrode
	The welding machine is powered by a generator or through a long extension cord with too small a cable cross-section	Connect the device directly to the mains
Unsatisfactory weld quality in TIG welding	Check the quality of the materials and consumables used, especially the tungsten electrode and shielding gas	Replace consumable parts, replace shielding gas with higher quality
	Shielding gas does not flow out or flows out with insufficient intensity	Check the cylinder gas regulator, gas supply hose, improve the connection of the hose with the fittings and the condition of the quick connectors

12. OPERATING INSTRUCTIONS

The MIG 200HD should be operated in an atmosphere free of corrosive components and high dust. Do not place the device in dusty places, near running grinders, etc. Dust and metallic filing contamination of control plates, cables and connections inside the device can lead to an electrical short circuit and consequently damage to the welding machine.

Avoid use in environments with high humidity, especially in situations where dew occurs on metal components. In the event of dew on metal components, e.g. after a cold device has been introduced into a warm room, wait until it is completely dry and the device has warmed up to ambient temperature. Running a cold welding machine in these conditions may cause damage to it. If the welding machine is operated outdoors, it is recommended to place it under a roof to protect it from adverse weather conditions.

The MIG 200HD should be operated under the following conditions:

- changes in the rms value of the supply voltage not greater than 10%
- ambient temperature from –10°C to +40°C
- atmospheric pressure 860 to 1060 hPa
- relative humidity of atmospheric air not exceeding 80%
- altitude up to 1000m above sea level

List of consumable parts:

Lp.	For steel wires	For aluminum wires
1	Feeder roller 30x10x10mm	Feeder roller Al 30x10x10mm
2	Current Connector TW-15 M6x25	Al TW-15 M6x25 Terminal
3	TW-15 current connector	
4	Gas nozzle TW-15	
5	3m steel insert	3m Teflon Cartridge

A full list of consumable parts and spare parts is available on the www.tecweld.pl website and from TECWELD. It is possible to purchase these parts directly.

13. MAINTENANCE INSTRUCTIONS

As part of daily operation, keep the welding machine clean, check the condition of external connections, and the condition of electrical wires and cables.
Replace consumable parts regularly.
Periodically (depending on the operating conditions), remove the housing and clean the device inside by blowing with compressed air to remove dust and metal swarf from the control boards and electrical cables and connections.
At least once every six months, the general equipment and the condition of electrical connections should be inspected, in particular:

- state of protection against electric shock
- isolation status
- security system status
- correct operation of the cooling system

Damage resulting from operating the welding machine under improper conditions and failure to follow maintenance recommendations are not covered by warranty repairs.

14. STORAGE AND TRANSPORT INSTRUCTIONS

The device should be stored at a temperature of –10°C to +40°C and a relative humidity of up to 80% free of corrosive fumes and dust. Transport of packaged devices should be carried out by covered means of transport. During transport, the packaged device must be protected against movement and provided with the correct position.

15. SET SPECIFICATION

1. Source	1 pc.
2. TW-15 welding torch	1 pc.
3. Clamp Clamp Ground Cable	1 pc.
4. Electrode Wire	1 pc.
4. User Manual	1 pc.
5. Packaging	1 pc.

16. WARRANTY

The warranty is granted for a period of 12 months for business entities, but excluding warranty claims, or 24 months for consumers from the date of sale.
The warranty will be respected upon presentation by the complainant of proof of purchase (invoice or receipt) and a warranty card with the product name, serial number, date of sale and stamped point of sale.
To order a warranty repair, please fill in the form located on the www.tecweld.pl website in the SERVICE tab. On the basis of the notification, the device will be transported to the service by a courier company. Devices sent in any other way at the expense of TECWELD will not be accepted!
The welding machine must be supplied with the welding torch. Complaints about the appliance without the welding torch will not be considered.
The device sent for complaint must be packed in the original cardboard box secured with original polystyrene fittings. TECWELD is not responsible for damage to the welding machine resulting from transport.



If you intend to dispose of this product, do not dispose of it with ordinary household waste. According to the WEEE Directive (Directive 2012/19/EU) in force in the European Union, separate disposal processs must be used for used electrical and electronic equipment.
In Poland, in accordance with the provisions of the Act of 11 September 2015 on Waste Electrical and Electronic Equipment, it is prohibited to place waste equipment marked with the crossed-out bin symbol together with other waste.

The user who intends to dispose of this product is obliged to return waste electrical and electronic equipment to a waste equipment collection point. Collection points are operated, m.in, by wholesalers and retailers of this equipment
and by municipal organisational units operating in the field of waste collection.
The above statutory obligations have been introduced in order to reduce the atorch of waste generated from waste electrical and electronic equipment and to ensure an appropriate level of collection, recovery and recycling of waste equipment. The proper implementation of these obligations is particularly important when waste equipment contains hazardous components that have a particularly negative impact on the environment and human health.

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17. ELECTRICAL DIAGRAM

