V1.2 21.08.23

# USER MANUAL

## INWERTOROWA SPAWARKA PÓŁAUTOMATYCZNA MIG 140 FLUX

Sherman® hobby

CE

# WARNING!

Before installing and starting the device, please read this manual

**1. GENERAL REMARKS**

The device may only be started and operated after carefully reading this Operating Instructions.

Due to the continuous technical development of the device, some of its functions may be modified and their operation may differ in detail from the descriptions in the manual. This is not a device error, but the result of progress and continuous modification work on the device.

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

**2. SECURITY**

Employees operating the device should have the necessary qualifications entitling them to perform welding work:

- should have qualifications of an electric welder in the field of gas shielded welding,
- know the health and safety rules when operating electrical power equipment such as welding equipment and auxiliary equipment powered by electricity,
- know the health and safety regulations when handling cylinders and installations with compressed gas (argon),
- be familiar with the contents of this manual and use the device in accordance with its intended purpose.

# WARNING

**Welding can pose a safety risk to the operator and other people in the vicinity.**
**Therefore, special precautions must be taken when welding. Before starting to weld, familiarize yourself with the health and safety regulations applicable at the workplace.**
**The following hazards exist during MMA and MIG/MAG electric welding:**

- **ELECTRIC SHOCK**
- **NEGATIVE IMPACT OF ARC ON HUMAN EYES AND SKIN**
- **VAPORS AND GAS POISONING**
- **BURNS**
- **EXPLOSION AND FIRE HAZARDS**
- **NOISE**

**Preventing electric shock:**

- connect the device to a technically efficient electrical installation with proper protection and effective zeroing (additional protection against electric shock); other devices at the welder's workstation should also be checked and correctly connected to the network,
- install power cables when the device is switched off,
- do not touch the non-insulated parts of the electrode holder, the electrode and the object at the same time welded, including the device housing,
- do not use handles and power cables 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 and
  those responsible for safety should wear clothing and gloves with good insulating properties,
- if you notice any irregularities, please contact the competent persons to have them corrected. removal,
- It is prohibited to operate the device with removed covers.

**Preventing the negative impact of electric arc on human eyes and skin:**

- 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 choose the right wall colors absorbing harmful radiation.

**Prevention of poisoning by vapors and gases emitted during welding from electrode coating and metal evaporation:**

• Use ventilation devices and exhaust systems installed in places with limited air exchange.
air,
• Blow with fresh air when working in a confined space (tanks),
• Use masks and respirators.

**Burn prevention:**

• Wear appropriate protective clothing and footwear to protect against radiation burns.
arc and splinters,
• Avoid contaminating clothing with grease and oils that may cause ignition.

**Explosion and fire prevention:**

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

**Preventing the negative impact of noise:**

• Use earplugs or other noise protection measures,
• Warn people nearby about dangers.

**WARNING!**

Do not use an electrical source to thaw frozen pipes.

Before starting the device, you must:

• Check the condition of electrical and mechanical connections. It is forbidden to use handles and power cables with damaged insulation. Improper insulation of handles and power cables may cause electric shock,

• Ensure proper working conditions, i.e. ensure proper temperature, humidity and ventilation in the workplace.
work. Outside closed rooms, protect against atmospheric precipitation,
• Place the charger in a place where it can be easily operated.

People operating a welding machine should:

• have qualifications for MMA and MIG/MAG electric welding,
• know and comply with the occupational health and safety regulations applicable to welding work,
• use appropriate, specialist protective equipment: gloves, apron, rubber boots, shield
or a welding helmet with a properly selected filter,
• be familiar with the contents of this instruction manual and use the welding machine in accordance with its intended purpose.

Any repairs to the device may only be performed after disconnecting the plug from the power socket.

When the device is connected to the mains, it is not permitted to touch any elements forming the welding current circuit with bare hands or through wet clothing.
It is prohibited to remove external covers when the device is connected to the mains.
Any modifications to the rectifier on your own are prohibited and may constitute a deterioration of safety conditions.
All maintenance and repair work may only be carried out by authorised persons in compliance with the work safety conditions applicable to electrical devices.
It is prohibited to operate the welding machine in rooms at risk of explosion or fire!
The welding station should be equipped with fire extinguishing equipment.
After finishing work, the device's power cord must be disconnected from the mains.

The above-mentioned hazards and general health and safety rules do not exhaust the issue of welder's work safety, because they do not take into account the specifics of the workplace. An important supplement to them are workplace health and safety instructions and training and instruction provided by supervisory employees.

#### 3. GENERAL DESCRIPTION

The MIG 140 FLUX semi-automatic welder is used for manual welding of steel using self-shielded flux-cored wires without the need for protective gases. The device uses synergistic settings and automatically selects the wire feed speed to the set welding voltage.
The welder is used in closed or roofed rooms, not exposed to direct weather conditions. MIG 140 FLUX works with D100 wire spools.
It is intended for amateur and occasional work.

## 4. TECHNICAL PARAMETERS

#### 4.1 Welding machine

| | **MIG 140 FLUX** |
|---|---|
| Supply voltage: | AC 230V 50Hz |
| Rated welding current/duty cycle | MIG: 100A / 60% |
| Welding current adjustment range | MIG: 35 - 100 A |
| Welding voltage adjustment range (MIG) | 15-18V |
| Wire spool diameter: | 100mm |
| Maximum current consumption | 12 A |
| Maximum power consumption | 2.6kVA |
| Network security | 10A |
| Mass: | 4.5kg |
| Dimensions: | 320x120x186mm |
| Degree of protection | IP23S |

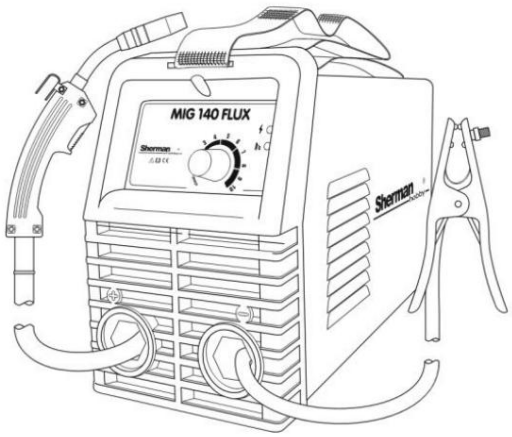
### 4.2 MIG torch

| | |
|---|---|
| Handle type | TW-14 |
| Maximum current carrying capacity | 150A |
| Cooling type | Shielding gas |
| Cooling gas flow | 10-18 l/min |
| Length | 2.2m |

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

Note! Heating tests were conducted at ambient air temperature. Duty cycle at 40ºC 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. IP23S means that the device is designed for use in closed rooms and is not suitable for use in rain and snow.



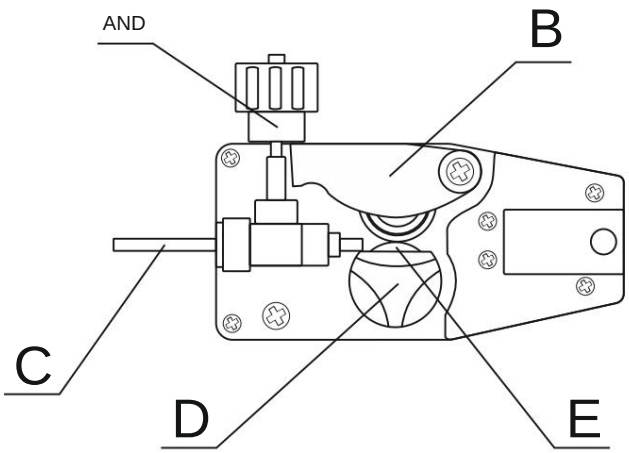
## 5. PREPARING THE DEVICE FOR WORK

### 5.1 CONNECTION TO THE POWER SUPPLY

1. The MIG 140 FLUX device should only be used in a single-phase power supply system, three-wire with grounded neutral point.
2. The MIG 140 FLUX semi-automatic welding machine is designed to work with a 230V 50Hz network. protected by 10 A slow-acting fuses.
3. The device 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.

### 5.2 INSTALLING THE ELECTRODE WIRE REEL

1. Open the side cover of the housing.
2. Check that the drive roller is suitable for the wire type and diameter.
3. Place the spool of electrode wire on the mandrel.
4. Secure the spool against falling.
5. Release the pressure of the feed roller by turning the tension screw (A) and lifting the roller arm. pressure plate (B).
6. Blunt the tip of the electrode wire.
7. Insert the wire through the guide tube (C) and guide roller (E) of the feeder into the holder.
8. Press the wire into the grooves of the drive roller.
9. Unscrew the current tip from the holder, turn on the welding machine power supply and press the control button. welding torch.
10. Once the electrode wire appears in the handle outlet, release the button and screw on the tip current.




A Tension screw
B Pressure roller arm
C Electrode wire guide tube
D Guide roller mounting screw
E Guide roller

### 5.3 GUIDE ROLLER REPLACEMENT

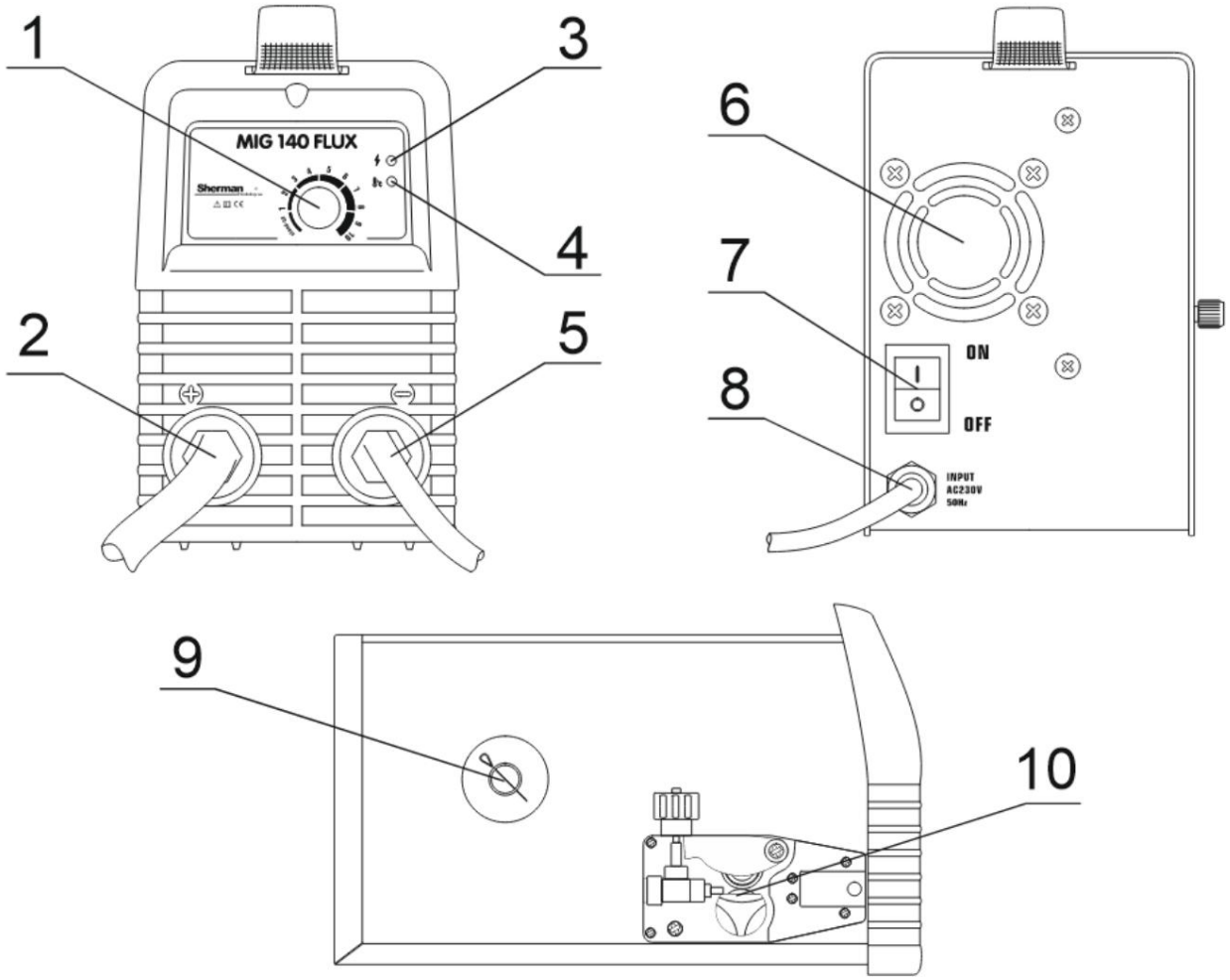
1. Open the side cover of the housing
2. Loosen the tensioning screw (A)
3. Lift the pressure roller arm (B)
4. Turn the guide roller screw (D) counterclockwise and remove it.
5. Remove the guide roller (E).
6. Install the guide roller (E) so that the groove of the correct diameter is in the wire feeder axis.
7. Install the guide roller mounting screw and lock it by turning it clockwise.
8. Lower the pressure roller arm (B) and lock it with the tensioning screw (A).
9. Adjust the roller pressure by turning the tensioning screw.

### 5.4 PREPARING THE MIG GUN FOR WORK

Depending on the type of material being welded and the diameter of the electrode wire, install the appropriate current tip and wire guide insert into the MIG torch.

| Electrode wire diameter 0.8 0.9 | Contact tip diameter |
|---|---|
| | 0.8 |
| | 0.9 |

### 6. DESCRIPTION OF SWITCH AND KNOB FUNCTIONS




1. Welding current voltage adjustment knob 2. Welding torch connection
3. Power LED
4. Thermal protection diode
5. Ground cable connection
6. Fan
7. Power switch 8. Power cord
9. Wire spool mounting pin
10. Wire electrode feeder

### 7. OVERHEATING PROTECTION

The power source is equipped with a thermal, automatic overload switch. When the temperature of the welding machine is too high, the protection will disconnect the welding current and the overheating diode (4) will light up. After the temperature drops, the switch will automatically reset.

## 8. PREPARATION FOR THE WELDING PROCESS

### 8.1 PREPARING THE DEVICE FOR WORK

1. Make sure the power switch (7) is in the OFF position.
2. Install the spool of self-shielding wire.
3. Securely attach the ground cable clamp to the workpiece being welded.

### 8.2 SETTING WELDING PARAMETERS

1. Turn on the device's power using the switch (7).
2. Set the appropriate welding voltage using the knob (1). The device will automatically select the wire feed speed. Setting the knob to the stand-by position will cause the welder to go into stand-by mode.

### 8.3 ARC INITIATION

1. Bring the torch closer to the welded elements so that the distance between the nozzle and the welded elements was approximately 10 mm.
2. Press the button on the welding gun and start welding. Releasing the button will end welding process.

#### 9. BEFORE YOU CALL FOR SERVICE

If the device does not function properly, before sending the welding machine to the service center, check the list of basic faults and try to fix them yourself.
Any repairs to the device may only be performed after disconnecting the plug from the power socket.

Note! The device is not sealed and the user can remove the welding machine housing to eliminate minor faults.

| | Cause | Procedure |
|---|---|---|
| Symptoms No power, failure signal or device malfunction | No connection or loose plug inside the device | Remove the cover, check and repair all electrical plug connections inside the device. |
| No electrode wire feeding (feeder motor is running) | Roller pressure too weak | Set the correct pressure |
| | Incorrect guide roller groove diameter | Install the correct guide roller |
| | Dirty wire guide in the holder | Clean the electrode wire guide |
| | Electrode wire blocked in the current tip | Replace the contact tip |
| Irregular electrode wire feed | Damaged current terminal | 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 walls of the welding machine cover | Secure the wire spool correctly |
| The arc does not ignite | No proper contact of the ground wire terminal | Improve the contact of the ground terminal |
| | Damaged switch in MIG torch | Replace the switch |
| | Improper connection of the MIG gun to the device | Check the condition of the electrical connections of the holder, check if the pins in the socket are not broken or jammed |
| The arc is too long and irregular | Welding voltage too high | Reduce welding voltage |
| | Wire feed speed too slow | Increase wire feed speed |
| Bow too short | Welding voltage too low | Increase welding voltage |
| | Wire feed speed too high | Reduce wire feed speed |
| After switching on the power, the power on indicator light does not light up | No power supply voltage | Check the fuses at the mains connection |
| The overheating diode is on | The device has overheated. | Wait a few minutes until the diode goes out and continue welding. |
| The fan is not working | The fan was blocked by a bent cover | Straighten the fan cover |
| Unsatisfactory weld quality | Inappropriate or poor quality materials or consumables used, | Replace consumable parts. Change welding wire or gas cylinder to suitable or higher quality materials |

## 10. OPERATING INSTRUCTIONS

The MIG 140 FLUX semi-automatic welder should be operated in an atmosphere free from corrosive components and high dust levels. The device should not be placed in dusty places, near working grinders, etc. Dust and contamination with metal filings of control boards, cables and connections inside the device may lead to an electrical short circuit and, consequently, to damage to the welder.

Avoid operation in high humidity environments, especially where dew occurs on metal parts.

If dew appears on metal parts, e.g. after bringing a cold device into a warm room, wait until it dries completely and the device warms up to the ambient temperature. Starting a cold welder in these conditions can damage it. It is recommended that the welder be placed under a roof to protect it from adverse weather conditions if used outdoors.

The MIG 140 FLUX device should be operated under the following conditions: - changes in the effective 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 above sea level up to 1000m

List of consumable parts:

| No. | Name |
|---|---|
| | Feed roller 25x8mm (7x7mm) |
| 1 | TW-15 M6x25 power tip |
| 2 | TW-15 current switch |
| 3 | Gas nozzle TW-15 |
| 4 5 | Steel insert |

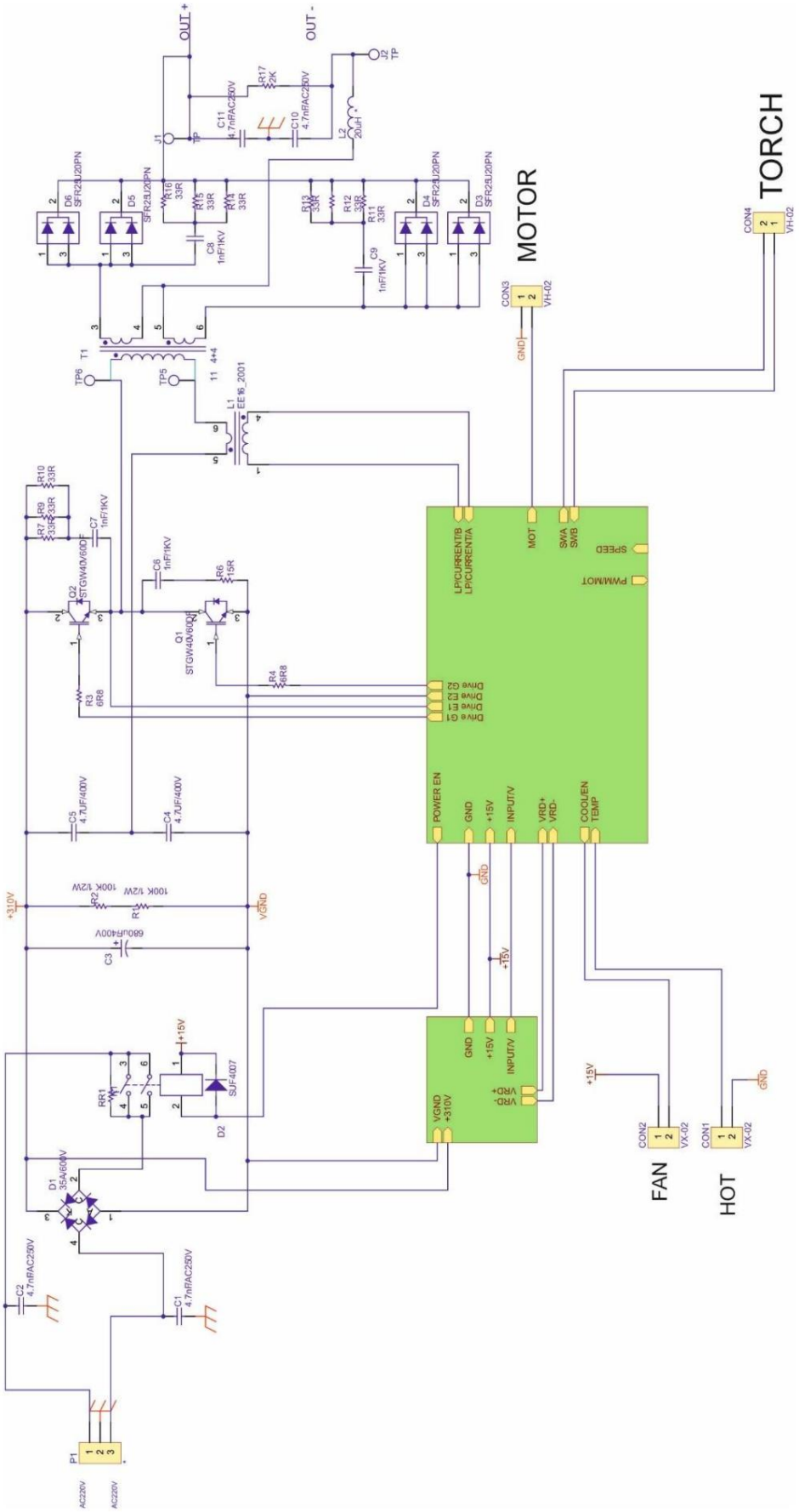
## 11. MAINTENANCE INSTRUCTIONS

As part of daily maintenance, keep the welding machine clean and check the condition of the handle, cables and external connections.
Replace consumable parts regularly.
Periodically (depending on operating conditions) remove the cover and clean the device inside by blowing it with compressed air to remove dust and metal filings from the control boards and electrical wires and connections.

At least once every six months, a general inspection and condition of electrical connections should be carried out, in particular:
- condition of electric shock protection - condition of insulation
- status of the security system
- correct operation of the cooling system

**Damage resulting from operating the welding machine in improper conditions or failure to follow maintenance recommendations is not covered by warranty repairs.**

## 12 ELECTRICAL DIAGRAM



## 13. STORAGE AND TRANSPORT INSTRUCTIONS

The device should be stored at a temperature of -10°C to +40°C and relative humidity of up to 80%, free from corrosive fumes and dust. The transport of packed devices should be carried out in covered means of transport. During transport, the packed device should be secured against moving and ensured in the correct position.

## 14. COMPLETE SPECIFICATION

1. Welding source with integrated MIG torch and electrode cable 1 pc.
2. User manual 3. 1 pc.
Packaging 1 pc.

## 15. 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 honored upon presentation by the claimant of proof of purchase (invoice or receipt) and a warranty card with the product name, serial number, date of sale and the stamp of the point of sale.**

**To order a warranty repair, please fill out the form available at www.tecweld.pl in the SERVICE tab. Based on 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 delivered with a welding torch. Complaints about the machine without a welding torch will not be considered.**
**The device sent for complaint must be packed in the original carton secured with original polystyrene shapes. TECWELD is not responsible for any damage to the welder caused during transport.**

If you intend to dispose of this product, do not dispose of it with normal household waste.
According to the WEEE Directive (Directive 2012/19/EU) in force in the European Union, separate disposal methods 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 used equipment marked with the crossed-out wheeled bin symbol together with other waste.

The user who intends to dispose of this product is obliged to return used electrical and electronic equipment to a collection point for used equipment. Collection points are run by, among others, wholesalers and retailers of this equipment and by municipal organizational units conducting activities in the field of waste collection.

The above statutory obligations were introduced to limit the amount of waste generated from used electrical and electronic equipment and to ensure an appropriate level of collection, recovery and recycling of used equipment. Proper implementation of these obligations is especially important when the used equipment contains hazardous components that have a particularly negative impact on the environment and human health.

TECWELD Piotr Polak
41-943 Piekary ÿlÿskie ul. Szmaragdowa 21/3/6

branch:
41-909 Bytom ul. Krzyÿowa 1G
Phone +48 32 386 94 28
e-mail: info@tecweld.pl, www.tecweld.pl

# DECLARATION OF CONFORMITY
# 01/MIG140FLUX/2022

Authorized manufacturer representative:
**TECWELD Piotr Polak**
41-943 Piekary ŷlŷskie
ul. Emerald 21/3/6

branch:
41-909 Bytom
1G Krzyŷowa Street

We declare that the product listed below:

## Semi-automatic welding machine

**Trade name:** **MIG 140 FLUX**

**Type:** **MIG-140FL**

**Manufacturer's trademark:** Sherman® hobby

to which this declaration relates complies with the requirements of the following European Union directives and national provisions implementing these directives:

**Low Voltage Directive LVD 2014/35/EU**

**EMC Electromagnetic Compatibility Directive 2014/30/EU**

**RoHS II Directives 2011/65/EU**

and complies with the following standards:

**PN-EN IEC 60974-1:2018-11+A1:2019-06** Arc welding equipment - Part 1: Welding power sources,

**PN-EN 60974-10:2014-12** Arc welding equipment - Part 10: Electromagnetic compatibility (EMC) requirements,

**PN-EN IEC 63000:2019-01** Technical documentation for the assessment of electrical and electronic products electronic in relation to the restriction of hazardous substances.

Year of CE marking on the device: 2022

Bytom, 01.06.2022

Peter the Pole
*(signature of authorized person)*