

# MAGNUM TIG THF 238

## INSTRUCTIONS MANUAL



**WARNING! FOR SAFETY REASON PLEASE READ AND UNDERSTAND THE FOLLOWING INSTRUCTIONS BEFORE FIRST USE OF THE DEVICE.**

# 1. General instructions

## **Read the operating instructions!**

The operating instructions provide an introduction to the safe use of the products. An incorrectly performed installation can result in material damage and injure persons as a result. For this reason, we do not accept any responsibility or liability for losses, damages or costs arising from incorrect installation, improper operation or incorrect usage and maintenance or any actions connected to this in any way.

- Read the operating instructions for all system components!
- Observe accident prevention regulations!
- Observe all local regulations!
- Confirm with a signature where appropriate.

## 2. Safety instructions

### DANGER!

#### Electromagnetic fields!

The power source may cause electrical or electromagnetic fields to be produced which could affect the correct functioning of electronic equipment such as IT or CNC devices, telecommunication lines, power cables, signal lines and pacemakers.

- Observe the maintenance instructions! (see Maintenance and Testing chapter)
- Unwind welding leads completely!
- Shield devices or equipment sensitive to radiation accordingly!
- The correct functioning of pacemakers may be affected (obtain advice from a doctor if necessary).

#### Do not carry out any unauthorised repairs or modifications!

To avoid injury and equipment damage, the unit must only be repaired or modified by specialist, skilled persons! The warranty becomes null and void in the event of unauthorised interference.

- Appoint only skilled persons for repair work (trained service personnel)!

#### Electric shock!

Welding machines use high voltages which can result in potentially fatal electric shocks and burns on contact. Even low voltages can cause you to get a shock and lead to accidents.

- Do not touch any live parts in or on the machine!
- Connection cables and leads must be free of faults!
- Switching off alone is not sufficient!
- Place welding torch and stick electrode holder on an insulated surface!
- The unit should only be opened by specialist staff after the mains plug has been unplugged!
- Only wear dry protective clothing!
- Wait for 4 minutes until the capacitors have discharged!

### WARNING!

#### Risk of injury due to radiation or heat!

Arc radiation results in injury to skin and eyes.

Contact with hot workpieces and sparks results in burns.

- Use welding shield or welding helmet with the appropriate safety level (depending on the application)!
- Wear dry protective clothing (e.g. welding shield, gloves, etc.) according to the relevant regulations in the country in question!
- Protect persons not involved in the work against arc beams and the risk of glare using safety curtains!

#### Explosion risk!

Apparently harmless substances in closed containers may generate excessive pressure when heated.

- Move containers with inflammable or explosive liquids away from the working area!
- Never heat explosive liquids, dusts or gases by welding or cutting!

## WARNING!

### **Smoke and gases!**

**Smoke and gases can lead to breathing difficulties and poisoning. In addition, solvent vapour (chlorinated hydrocarbon) may be converted into poisonous phosgene due to the ultraviolet radiation of the arc!**

- Ensure that there is sufficient fresh air!
- Keep solvent vapour away from the arc beam field!
- Wear suitable breathing apparatus if appropriate!

### **Fire hazard!**

**Flames may arise as a result of the high temperatures, stray sparks, glowing-hot parts and hot slag produced during the welding process.**

**Stray welding currents can also result in flames forming!**

- Check for fire hazards in the working area!
  - Do not carry any easily flammable objects such as matches or lighters.
  - Keep appropriate fire extinguishing equipment to hand in the working area!
  - Thoroughly remove any residue of flammable substances from the workpiece before starting welding.
  - Only continue work on welded workpieces once they have cooled down.
- Do not allow to come into contact with flammable material!
- Connect welding leads correctly!

**Risk of accidents if these safety instructions are not observed!**

**Non-observance of these safety instructions is potentially fatal!**

- Carefully read the safety information in this manual!
- Observe the accident prevention regulations in your country.
- Inform persons in the working area that they must observe the regulations!

### **Danger when coupling multiple power sources!**

**Coupling multiple power sources in parallel or in series has to be carried out by qualified personnel and in accordance with the manufacturer's guidelines. Before bringing the power sources into service for arc welding operations, a test has to verify that they cannot exceed the maximum allowed open circuit voltage.**

- Connection of the machine may be carried out by qualified personnel only!
- When decommissioning individual power sources, all mains and welding current leads have to be safely disconnected from the welding system as a whole. (Danger due to inverse voltages!)
- Do not couple welding machines with pole reversing switch (PWS series) or machines for AC welding, as a minor error in operation can cause the welding voltages to be combined.

## WARNING!

### **Hazards due to improper usage!**

**Hazards may arise for persons, animals and material objects if the equipment is not used correctly. No liability is accepted for any damages arising from improper usage!**

- The equipment must only be used in line with proper usage and by trained or expert staff!
- Do not modify or convert the equipment improperly!

# CAUTION!

## **Installation site!**

**The machine must not be operated in the open air and must only be set up and operated on a suitable, stable and level base!**

- The operator must ensure that the ground is non-slip and level, and provide sufficient lighting for the place of work.
- Safe operation of the machine must be guaranteed at all times.

## **Equipment damage due to dirt accumulation!**

**Unusually high quantities of dust, acid, corrosive gases or substances may damage the equipment.**

- Avoid high volumes of smoke, vapour, oil vapour and grinding dust!
- Avoid ambient air containing salt (sea air)!

## **Non-permissible ambient conditions!**

**Insufficient ventilation results in a reduction in performance and equipment damage.**

- Observe the ambient conditions!
- Keep the cooling air inlet and outlet clear!
- Observe the minimum distance of 0.5 m from obstacles!

### 3. Applications

Magnum THF 238 is intended for tungsten electrode welding but also MMA welding. The device is made for metal arc welding of low-alloy, high-alloy, carbon steels, aluminium and its alloys,

The manufacturer is not liable for damage caused by improper use of the device.

### 4. Welding machine description

#### 4.1 Front view

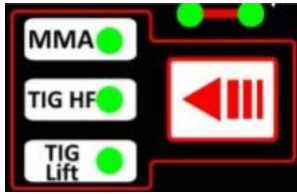
1. Functions and parameters control panel
2. Gas outlet
3. Connection socket (-)
4. Torch control connector
5. Connection socket (+)



#### 4.2 Control panel



#### 4.2.1 Control panel description

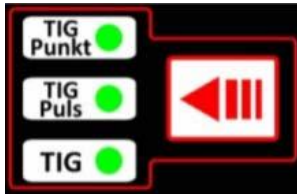


Welding mode selection button. Select desired welding mode by pressing the button.

**MMA** – stick welding mode

**TIG HF** – tungsten electrode welding with High Frequency arc ignition

**TIG Lift** – tungsten electrode welding with lift arc ignition

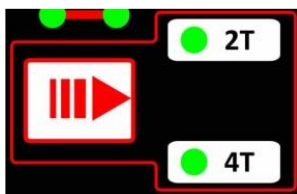


TIG welding features

**TIG Punkt** – spot welding mode

**TIG Puls** – pulse welding

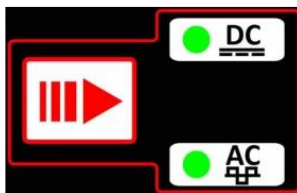
**TIG** – welding without pulse



Torch control mode

**2T** – two stroke mode. To ignite the arc press the button and proceed welding while holding the button. To stop the arc release the button

**4T** - four stroke mode. To start the arc press the button until arc is ignited. At this point release the button and continue welding. To stop the arc press and release the button



Current type selection

**DC** – welding with direct current

**AC** – welding with alternating current (flat waveform)



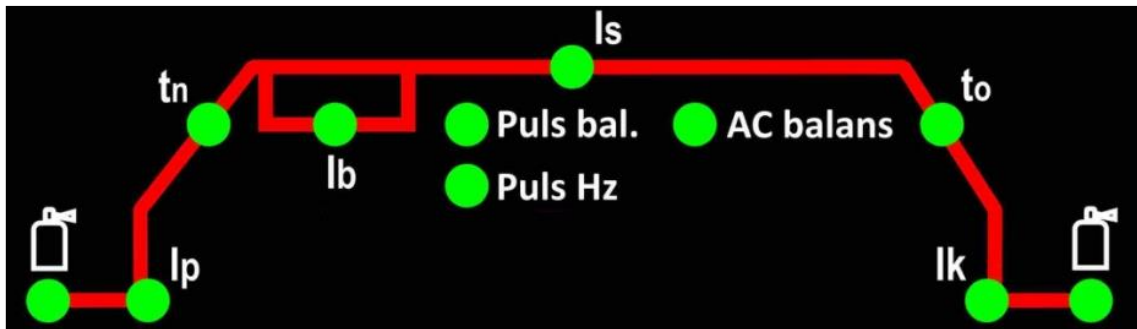
Adjustment knob / button

Turning the knob left or right decreases or increases parameter value. Pressing the knob confirms selection and jumps to next parameter.



Parameter display. Display shows actual value whereas corresponding symbol lights up.

#### 4.2.2 TIG welding parameters description



**Gas bottle symbol** – Adjustment of a shield gas supply before arc ignition

**Ip** – Start amps. Start current lasts while welding pool creates than it ramps up to welding current.

**tn** – Current ramping time. Setting the time it takes for start current to reach welding current value.

**Ib** – Base current when welding with pulse. Lower value of pulse amperage.

**Is** – Welding current. Upper value of pulse amperage when welding with pulse.

**Puls bal.** – Pulse balance. Adjustment of a base current ( $I_b$ ) to welding current ( $I_s$ ) ratio. 50% setting means that base current lasts for the same time as welding current.

**Puls Hz** – Adjustment of a TIG pulse frequency.

**AC balans** – Adjustment of a positive to negative polarization when welding with AC/DC current.

**to** – Time it takes from welding current to decrease to end current.

**Ik** – End current. Adjustment of a current it takes to fill out the crater before arc goes off.

**Gas bottle symbol 2** – Adjustment of a time when shield gas is provided after arc stops.

#### 5. Spot welding (TIG Punkt)

Spot welding in the device gives you an option to make short welds in a given time gaps. Using this feature there are fewer parameters to be set: pre gas, welding current ( $I_s$ ), pulse balance, post gas and a time gap between the welds. To conduct welding you need to press the torch button and hold it. Device will provide short amperage impulses in a given time gaps e.g. if you set the time gap for 5 seconds and start welding you need to hold the button constantly and the device will provide amperage impulses every five seconds.



## 6. Technical specification

Model		THF 238P AC/DC
Welding current MMA DC		10÷170 [A]
	1 [A]	
Welding current MMA AC	1 [A]	10÷170 [A]
Hot Start range	10 [%]	0÷100 [%]
Arc Force range	10 [%]	0÷100 [%]
Welding current TIG DC	1 [A]	10÷170 [A]
Welding current TIG AC	1 [A]	10÷200 [A]
Spot welding time gap range	0,1 / 0,5 [s]	0÷10 [s]
Pre gas time	0,1 [s]	0÷2 [s]
Start current I <sub>p</sub>	1 [A]	Pełny zakres
Upslope time/Current ramping t <sub>n</sub>	0,1 [s]	0÷10 [s]
Base current I <sub>b</sub>	1 [A]	Pełny zakres
Welding current I <sub>s</sub>	1 [A]	Pełny zakres
Pulse balance	5 [%]	5÷95 [%]
Pulse frequency	0,1 / 1 [Hz]	0,5÷200 [Hz]
AC balance	1 [%]	10÷99 [%]
AC frequency	1 [Hz]	-
Downslope time t <sub>o</sub>	0,1 [s]	0÷10 [s]
End current I <sub>k</sub>	1 [A]	Pełny zakres
Post flow time	0,1 [s]	0÷10 [s]
BiLevel disactivation time ( r )	1 [s]	-
Automatic return to main menu		5 [s]

## **7. Connecting power supply precautions**

**WARNING! Before any operations carried out on the device pull the plug out of the power socket.**

1. Make sure that the device is not connected to the electricity
2. Check if the ground wire has a clamp or screw clamp
3. Connect the ground clamp to the socket on the front panel with proper polarization.
4. Insert the torch plug into the socket on the panel and tighten it.

## **8. Cleaning and maintaining the device**

The protection class of this device is IP21S. Do not use the device in the rain, nor expose it to extensive moisture.

### **WARNING!**

**Device based on electronic components. Metal grinding and cutting close to the welder may cause contamination of the inside of the device, thus causing its damage.**

**The damage mentioned above is not covered by the warranty. If you need to work in such an environment, please clean device before use by blowing the inside of the welding machine with compressed air.**

To prolong the life and reliable operation of the device, several rules must be observed:

1. The device should be placed in a well-ventilated room where there is free air circulation.
2. Do not place the device on a wet surface.
3. Use a wire diameter and spool weight according to the table.
4. Check the technical condition of the device and welding cables.
5. Remove any flammable materials from the welding area.
6. Use suitable protective clothing for welding: gloves, apron, safety boots and welding helmet

## **9. Transporting and storage**

Always store the devices in a dry, ventilated place, out of reach of children and bystanders. Protect the device against vibrations and shocks during transport.

## **10. Recycling**

The packaging and device materials are suitable for recycling use. Disposal of the packaging and device must be done in accordance with local regulations. The packaging materials should be protected against children as they are potential source of danger.

## **11. Warranty**

The manufacturer of the device provides full warranty service for the power supply unit within 24 months from the day device was purchased. An individual warranty card is issued for each device. Warranty is valid only if all conditions listed in the instructions manual were fulfilled. If the device was used inappropriate or against instructions the warranty becomes invalid. Service centre does not cover the postage cost for sending the device for repairs or sending it back after repairs.

Spaw S.C. – Service Centre  
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30-731 Krakow  
Poland  
phone: +48 123 480 722  
repair request form - [www.spawsc.pl](http://www.spawsc.pl) - service tab.