

**WELDING MACHINE**

**aXe 201 MIG LCD**

**OPERATING MANUAL**

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## Introduction

Congratulations on your new ALFA IN product. We are proud to have you as our customer and will strive to provide you with the best service and reliability in the industry.

This Operating Manual was designed to instruct you on your ALFA IN product's correct use and operation. Your satisfaction with this product and its safe operation is our ultimate concern. Therefore, please take the time to read the entire manual, especially the Safety Precautions. They help you avoid potential hazards when working with this product.

The machine complies with the appropriate CE mark.

For maintenance and repairs, use only original spare parts. There is, of course, a complex of our services.

The model of aXe 201 MIG LCD is multi-functional inverter power generator welding by the methods:

- a) MIG/MAG in 2T, 4T, manually or synergistically with wires G3Si1 or stainless steel 0,6 - 1,0 mm, Al wires 1,0 mm, flux cored wires shield or standard.
- b) E – (MMA) coated electrodes up to 4,0 mm
- c) TIG lift arc

**S** The machine can be used for welding in areas with elevated danger of electric shock.

We reserve the law of adjustments and changes in case of printing errors, changes of technical parameters, accessories, etc., without previous notice. These changes may not be reflected in the manuals for paper or electronic form.



# 1. SAFETY INSTRUCTIONS AND WARNINGS

## PERSONAL PROTECTION

1. For safety reasons, protective gloves must be worn during welding. These gloves protect you from electric shock (circuit voltage at no load). It also protects you from heat radiation and splashing drops of hot metal.
2. Wear sturdy insulated shoes. Open shoes are not suitable, as drops of hot metal can cause burns.
3. Do not look into the welding arc without face and eye protection. Always use a high-quality welding helmet with an intact protective filter.
4. Ensure that the insulation of the torch and grounding cable is in good condition.
5. Persons near the welding site must also be informed of the danger and provided with protective equipment.
6. When welding, especially in small spaces, it is necessary to ensure a sufficient supply of fresh air, as welding produces harmful emissions.
7. Do not perform welding work on gas, oil, fuel, etc. Tanks (even empty ones) as there is a risk of explosion.
8. Special regulations apply in potentially explosive atmospheres.
9. Welded joints that are subject to high stress must meet special safety requirements. These are mainly rails, pressure vessels, etc. These joints may only be made by qualified, trained welders with the necessary authorization.

## SAFETY REGULATIONS

1. Before starting work with the welding machine, getting acquainted with the provisions in EN 050601 – Safety provisions for metal welding and the standard EN 050630 – Safety provisions for arc welding of metals is necessary.
2. The CO<sub>2</sub> bottle of mixed gases must be handled following the regulations for working with pressure vessels contained in EN 07 8305 and EN 07 8304. The requirements of EN 07 8304 may limit the size of the gas bottle that can be placed on the machine platform.
3. The welder must use protective equipment.
4. Disconnect the device from the mains before working on the electrical system, cleaning it, or removing the cover.

## 2. OPERATING CONDITIONS

1. The device may only be operated by trained personnel within the technical regulations. The manufacturer is not liable for damage caused by improper use and operation. Only use original spare parts from ALFA IN for maintenance and repairs.
2. The device complies with IEC 61000-3-12.
3. The welding machine is tested according to the standard for degree of protection IP 23S, which protects against the intrusion of solids with a diameter greater than 12 mm and protection against the intrusion of water falling in a vertical to the oblique direction to a slope of 60°.
4. Operating ambient temperature between -10 to +40 °C.
5. Relative humidity below 90% at +20 °C.
6. As high as 3000 meters above sea level.
7. Connecting more than one generator in series or parallel is prohibited.
8. The machine must be located so the cooling air can enter and exit through the cooling vents without restriction. Care must be taken to ensure that no mechanical particles, especially metal particles, are sucked into the machine (e.g., during grinding). Cooling is driven by electronic temperature automation.
9. For the welding machine, it is necessary to perform a periodic inspection once every 6/12 months by an authorized employee according to EN 331500 and EN 050630 – see paragraph Maintenance and service tests.
10. An authorized person may only carry out all interventions in the electrical equipment and repairs (disassembly of the mains plug, replacement of fuses).
11. The manufacturer sets the welding machine to 230 V with a tolerance range of 110 - 230 V  $\pm$  10 %, which allows the operation of the machine in the mains  $\sim$ 230 V and  $\sim$ 110 V.
12. The relevant mains voltage and power supply must match the mains plug.



**Caution**



**Extension cables must have conductors with cross-sections larger than 3x2,5 mm<sup>2</sup>. Welder can be operated on a single-phase power generator of 8 kVA (1x230V/50Hz) or more, with a voltage stabilization of  $\pm$  15%. Generators with lower power can damage the machine.**



**Caution**



If the machine is transported from a colder place to a much warmer location, moisture condensation might occur, particularly inside the welder. This could decrease electrical strength and increase the likelihood of



electrical short circuits in strained parts. Consequently, severe damage to the machine may occur. Therefore, allowing the welder to rest for approximately an hour is vital until the temperature stabilizes with the surroundings. This eliminates any condensation. Only after this time should you connect the welder to the mains and switch it on.

13. The stability of the machine is guaranteed up to an inclination of 10° if the following conditions are met:
  - a. The machine must be secured against spontaneous movement.
  - b. A gas cylinder with a maximum height of 0,9 m may be placed on the platform and properly anchored.
14. The machine must be protected against the following:
  - a. Moisture, rain, and intense sunlight
  - b. Mechanical damage
  - c. Drafts and possible ventilation of neighbouring machines
  - d. Excessive overloading – exceeding tech. parameters
  - e. Rough treatment

## **ELECTROMAGNETIC COMPATIBILITY**

Concerning interference suppression, the welding equipment is designed primarily for industrial premises. It meets the requirements of EN 60974-10 class A and is not intended for use in residential areas where a public low-voltage power supply network supplies electricity. Possible problems with ensuring electromagnetic compatibility in these areas may be caused by line propagation and radiated interference.

The device may be a source of interference during operation.

 Notice  We warn the user that he is responsible for any interference from welding.

### 3. TECHNICAL DATA

Method		MIG/ MAG	MMA	TIG	MIG/ MAG	MMA	TIG
Mains voltage	V/Hz	1x110/50-60			1x230/50-60		
Welding current range	A	25 - 130	10 - 100	10 - 140	25 - 200	10 - 200	10 - 200
Open-circuit voltage $U_{20}$	V	67,0			67,0		
Mains protection	A	20 @			16 @		
Max. effective current $I_{1eff}$	A	17,0	18,0	17,0	14,9	16,0	12,0
Welding current (DZ=100%) $I_2$	A	85	65	95	130	120	140
Welding current (DZ=60%) $I_2$	A	110	80	125	150	140	160
Welding current (DZ=x%) $I_2$	A	30%= 130	30%= 100	35%= 140	30%= 200	25%= 200	35%= 200
Protections		IP 23S					
Stand		EN 60974-1, EN 60974-10 cl. A					
Dimensions (w x l x h) generator	mm	474 x 911 x 670					
Compact weight	kg	44,5					
Wire-speed	m/ min	1,5 - 4,5	---	---	1,5 - 16,5	---	---
Spool diameter	mm	300	---	---	300	---	---
Spool weight	kg	18	---	---	18	---	---

**S** The machine marked with this symbol can be used for welding in areas with an increased risk of electric shock.

The design of the machine is such that in no case, even in the event of a rectifier failure, is the permissible peak value of the no-load voltage according to EN 60974-1 ed. 3 exceeded, i.e., 113 V DC or 68 V AC.





**Caution** Due to the size of the installed capacity, the approval of the distribution companies is required to connect the equipment to the public distribution network.

## 4. MACHINE ACCESSORIES

### PART OF DELIVERY

Code	Name	Image
5.0318	aXe 201 MIG LCD	
VM0151-1	Hose Gas 3m G1/4-G1/4	
VM0023	Earthing Cable 3 m 400 A 35mm <sup>2</sup> 35-50	
K910-1	Adapter up to 18 kg	

### ACCESSORIES TO ORDER

Code	Name	Image
SGB25-3	Torch PARKER SGB 250 3m (MIG/MAG)	
SGB25-4	Torch PARKER SGB 250 4m (MIG/MAG)	
SGB25-5	Torch PARKER SGB 250 5m (MIG/MAG)	
STH24-3	Torch PARKER STH 240AE 3m Hybrid (MIG/MAG)	
STH24-4	Torch PARKER STH 240AE 4m Hybrid (MIG/MAG)	
STH24-5	Torch PARKER STH 240AE 5m Hybrid (MIG/MAG)	



T24ST	Torch T2 4m 35-50 arc ST (TIG)	
T28ST	Torch T2 8m 35-50 arc ST (TIG)	
5847	Set Connectors ST 12 PIN	
VM0253	Welding Cable Set 2x 3m 35-50 200A	
	Rolls – see an <b>overview of rolls for wire feed</b>	
6008	Pressure Reducer FIXICONTROL Argon 2 manometers	
6124	Pressure Reducer BASECONTROL Ar 2 manometers	
6125	Pressure Reducer BASECONTROL CO2 2 manometers	
S777c.	Welding Helmet Barracuda S777C Black	

S7SUN9B	Welding Helmet S9B Shooting Shark Blue	
4488	Wire 0.8 Coreshield 15 A D200 Self Shielding 4,5kg spool	
VM0453	Adapter for spool 5kg	
5174	Torch holder MIG ALFA IN	
V9040095	Wire cleaner - Holder	
6050	Set for Aluminium with roll AL 22/30 0,8-1,0 4 rolls	
SGL2	Small Gas Lens Body Starter Kit 1.6mm-1/16"	
SGL4	Small Gas Lens Body Starter Kit 2.4mm-3/32"	
SGL5	Small Gas Lens Body Starter Kit 3.2mm-1/8"	
700.0306.10	Electrode wolf.1.6x175-Violet	
700.0308.10	Electrode wolf.2.4x175-Violet	
700.0310.10	Electrode wolfram E3 3.2x175 - violet	

## 5. DESCRIPTION OF THE MACHINE AND FUNCTIONS

### MAIN PARTS OF THE MACHINE

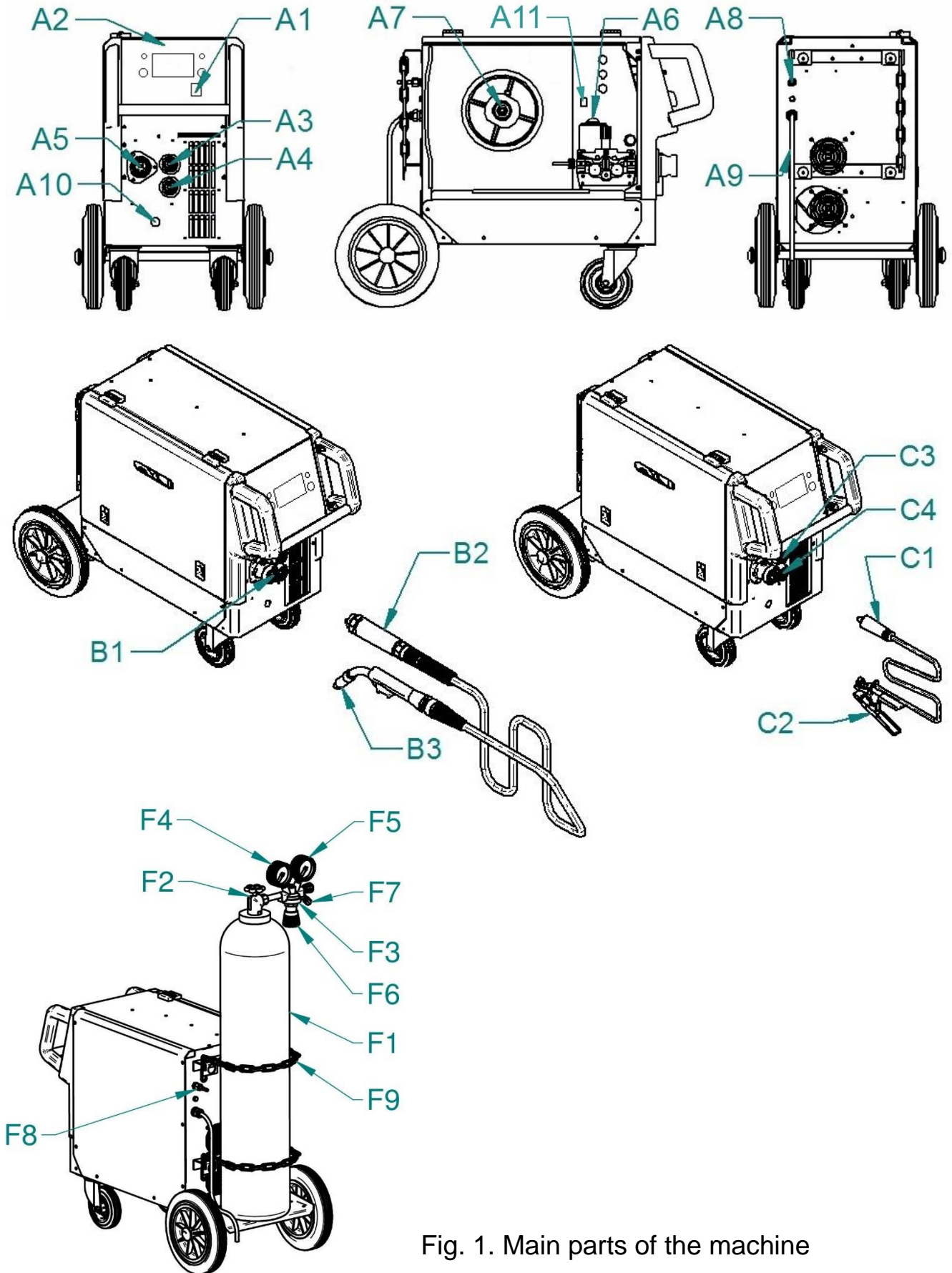


Fig. 1. Main parts of the machine

<b>Pos.</b>	<b>Name</b>
A1	ON/OFF switch
A2	PCB control panel
A3	Quick connector (+)
A4	Quick connector (-)
A5	Euro connector
A6	Wire feeder
A7	Spool holder
A8	Gas valve
A9	Mains cable
A10	TIG torch control connector
A11	Switch Spool Gun
B1	Euro connector
B2	Euro connector male
B3	Torch
C1	Quick connector male
C2	Grounding clamps
C3	Quick connector (+)
C4	Quick connector (-)
F1	Gas bottle
F2	Cylinder valve
F3	Pressure reducer
F4	High-pressure manometer
F5	Low-pressure manometer
F6	Adjusting screw
F7	Gas outlet
F8	Solenoid valve
F9	Chain

## CONTROL PANEL

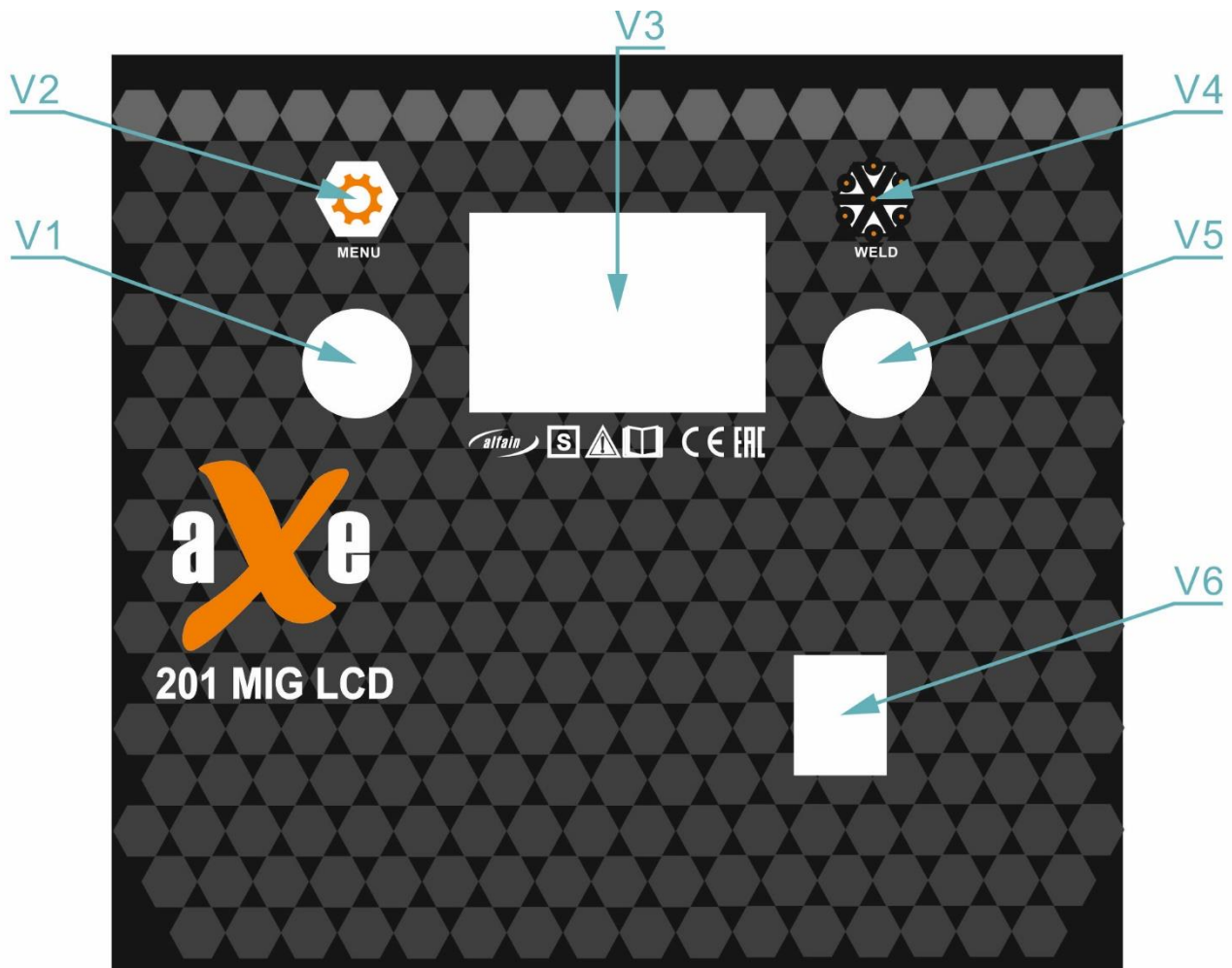


Fig. 2. Control panel

Pos.	Description
V1	Encoder <ul style="list-style-type: none"> <li>• Wire-speed for MIG/MAG</li> <li>• Current for MMA and TIG</li> </ul>
V2	MENU button
V3	Display
V4	Welding current and voltage adjustment button
V5	Encoder <ul style="list-style-type: none"> <li>• Voltage for MIG/MAG</li> <li>• Correction for MMA</li> <li>• DOWN SLOPE for TIG</li> </ul>
V6	Main switch

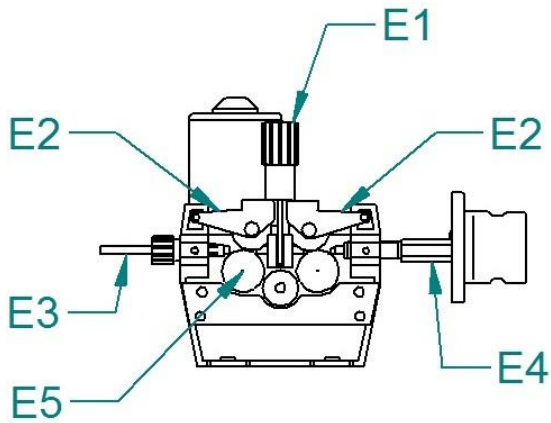
**WIRE FEEDER**

Fig. 3. Wire feeder

Pos.	Description
E1	The nut of a pressure arm
E2	Pressure arms
E3	Inlet liner
E4	EURO connector
E5	Roll

**OVERVIEW OF ROLLS FOR WIRE FEED**

		4pulley
		a = 22 mm
		b = 30 mm
Groove type	Wire diameter	Item No
<b>Steel</b> 	0,6-0,8	2187
	0,8-1,0	2188
<b>Aluminum</b> 	0,8-1,0	2270
<b>Flux core</b> 	0,8-1,0	2318
	1,0-1,2	2319



## 6. MAIN MENU

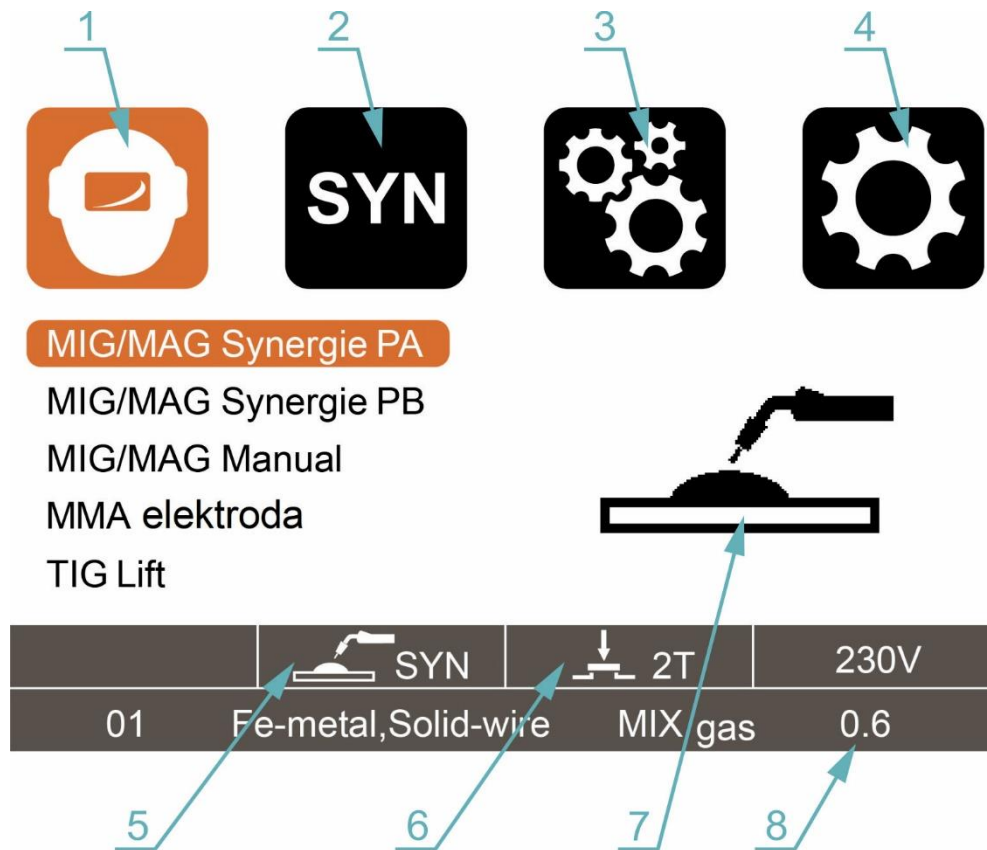


Fig. 4. Main menu

Pos.	Description
1	Method selection
2	Selection of synergy parameters
3	Setting welding parameters
4	System settings (including language)
5	Icon of the selected function
6	Icon of the selected mode
7	Multi-functional window
8	Synergy parameter (from left: program number, welding wire material, shielding gas, and wire diameter)

Press the MENU button **V2** to navigate between the submenus.

## METHOD SELECTION

Select the method by turning and pressing encoder **V1** (MIG/MAG Synergie, MIG/MAG Manual, MMA Electrode, and TIG Lift).



MIG/MAG Synergie PA

MIG/MAG Synergie PB

MIG/MAG Manual

MMA elektroda

TIG Lift





	 SYN	 2T	230V
01	Fe-metal, Solid-wire	MIX gas	0.6

Fig. 5. Submenu for method selection

With button **V4** on the top right panel, you can access the welding current and voltage settings. You are changing parameters by rotating the encoders **V1** and **V5**.

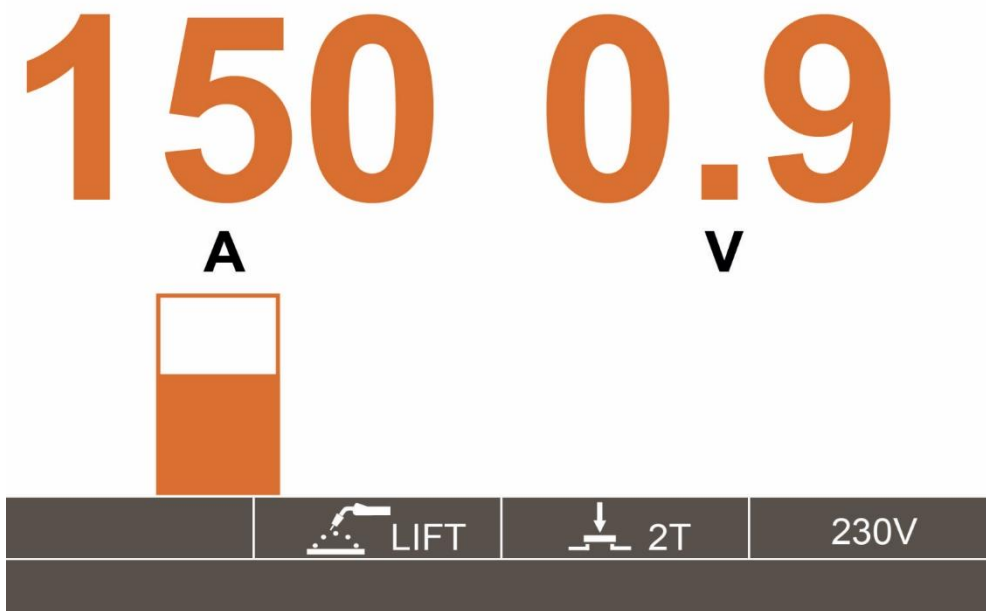


Fig. 6. Welding parameter settings



## SELECTION OF SYNERGY PARAMETERS

The synergy parameters submenu is only available when using MIG/MAG Synergy method. The synergy parameter is selected by rotating and then pressing encoder **V1**.

PRG	MATERIAL	PLYN	D.
01	Fe-metal,Solid-wire	MIX gas	0.6
02	Fe-metal,Solid-wire	MIX gas	0.8
03	Fe-metal,Solid-wire	MIX gas	1.0
04	Fe-metal,Solid-wire	CO2 gas	0.6
05	Fe-metal,Solid-wire	CO2 gas	0.8





	 SYN	 2T	230V
01	Fe-metal,Solid-wire	MIX gas	0.6

Fig. 7. Selection of synergy parameters

## SETTING OF SECONDARY WELDING PARAMETERS

Parameters select by rotating encoder **V1** and pressing encoder **V5**.

	 SYN	 2T	230V
01	Fe-metal,Solid-wire	MIX gas	0.6

2T / 4T
Dohoreni
Pocat. Rychl.
Predfuk
Dofuk
Tlumivka

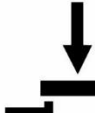
 2T

Fig. 8. Setting of secondary welding parameters

Secondary welding parameters	MIG/MAG welding parameters (default)	TIG welding parameters (default)	MMA welding parameters (default)
2/4 Tact	2T/4T (2T)	2T/4T (2T)	-
Burn Out	0-10 (0)	-	-
Initial Speed	0-10 (0)	-	-
Pregas	0-2 s (0 s)	-	-
Postgas	0-10 s (0 s)	0-10 s (0 s)	-
Choke	0-10 (5)	-	-
Rundown	-	0-10 s (0 s)	-
Hot Start	-	-	0-10 s (0 s)
Arc Force	-	-	0-10 s (0 s)

## SYSTEM SETTINGS

Set the parameters by rotating encoder **V1** and then pressing encoder **V5**.

The last position of the System Setup submenu is **Factory Reset**. Perform a **Factory Reset** by pressing encoder **V5**.



Jazyk

Jednotky

Zvuk Zap/Vyp

Jas displeje

Tovarni reset

Cesky



	 SYN	 2T	230V
01	Fe-metal,Solid-wire	MIX gas	0.6

Fig. 9. System settings submenu

## 7. MACHINE PREPARATION FOR MIG/MAG METHOD

### CHOOSING THE FEEDING ROLL

All machines (ALFA IN MIG / MAG) use rolls with two grooves. These grooves are intended for two different wire diameters (e.g., 0,8 and 1,0 mm).

Rolls for wire feed must comply with the diameter and material of the welding wire. Only this way a smooth wire feed can be achieved. Irregularities of the wire feed lead to poor welding quality and deformation of the wire.

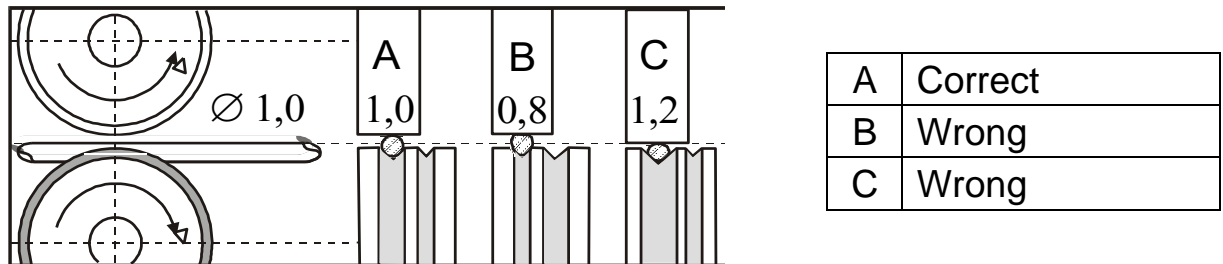
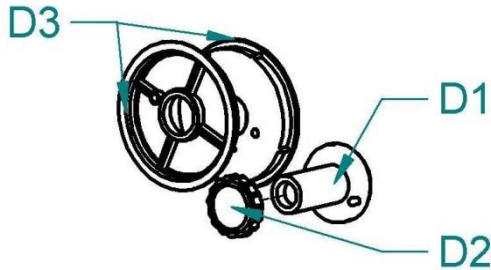


Fig. 10. The influence of the roll groove on the welding wire

### INSERTING THE WIRE

1. Open the side cover of the wire feeder space.
2. Put the wire spool on the wire spool holder **D1** and fix it with the fixing nut **D2**.
3. Cut off the curved or damaged end of the welding wire, lead it through the inlet liner **E3**, and roll it into the liner inside the EURO torch connector (about 5 cm). Make sure that you use a suitable groove.
4. Put the pressure arm **E2** down so that the teeth or the gear fit and fix it by setting lever **E1** vertically.
5. Adjust the pressure nut so that it provides constant movement of the wire but does not deform it. The adjusting screw is located under the plastic screw **E1**. The clamping force of the feed rolls is essential for the reliable operation of the feeding mechanism. The size of the force depends on the type of welding wire. For Aluminium or tubular wire, choose a smaller clamping force. If the clamping force is insufficient, rolls can slip, which results in the feed speed being irregular. If the contact force is too high, the mechanical wear of the bearings increases, the pressure mechanism does not fulfil its protective function, and in case of increased resistance of the wire feed (damaged or dirty Bowden, baked wire in the feedthrough, etc.), the slipping does not occur, and there is a risk of the wire being displaced sideways. In the extreme case, the motor may be blocked entirely, and the gearbox will be unduly mechanically stressed. The electric motor and the controller's power output could be overloaded and damaged.
6. Clean the pulleys of preservative oil before starting up.

7. The manufacturer sets the spool brake. If necessary, the brake can be adjusted by a screw D1 so that while stopping the feed, the spool is stopped on time (This avoids the excessive release of wire). However, a too-tight brake needlessly strains the feeding mechanism, and thus slippage may occur in the wire rolls.



Pos.	Description
D1	Spool Holder
D2	Nut Spool Holder
D3	It is not for this welder

Fig. 11. Spool holder

## INSERTING THE WIRE TO THE TORCH AND CONNECTION OF THE GROUNDING CABLE

1. Connect the MIG/MAG torch to the EURO connector **A5** on the machine while the machine is turned off.
2. Connect the grounding cable to the quick connector **A4** (-).
3. Connect the grounding clamps to the welder or the welding table.
4. ⚠️Notice⚠️ When inserting the wire, do not point with a torch to the eyes!
5. Remove the gas nozzle from the torch.
6. Unscrew the current nozzle.
7. Connect the machine with the mains plug to the 1x230 V/50-60 (1x110 V/50-60) Hz mains and switch it on with the main switch **V6** located on the front panel of the welder.
8. **MENU** button **V2** and encoder **V1** select desired MIG/MAG program.
9. In the submenu of welding parameters settings, select two-stroke or four-stroke.
10. Press the torch button, and the welding wire is fed into the torch. After the wire has run out of the torch tube, screw in the current pass and gas nozzle.
11. Before welding, spray the area in the gas nozzle and the jet tube with a separating spray to prevent the spatter from sticking.

## ADJUSTMENT OF GAS FLOW

The electric arc and the weld must be perfectly shielded by gas. Too small an amount of gas does not perform the protective atmosphere; on the other hand, too significant an amount of the gas brings air into the electric arc.

**Notice** The gas bottle must be well secured against fall. This manual does not solve the safe securing of gas bottles. Information can be obtained from a supplier of industrial gases.

1. Connect the gas hose to gas outlet **F8**.
2. Connect the gas hose from the bottle pressure-reducing valve **F4** to the gas valve **A8** on the rear panel.
3. Press the torch button.
4. Turn the adjusting screw **F7** at the bottom side pressure-reducing valve until the meter **F6** shows the required flow, then release the button. The optimum flow is 10-15l/min.
5. After the machine's long-term shutdown or torch replacement, it is suitable to blow the pipes with protective gas before welding.
6. Close the bottle valve when welding is finished.

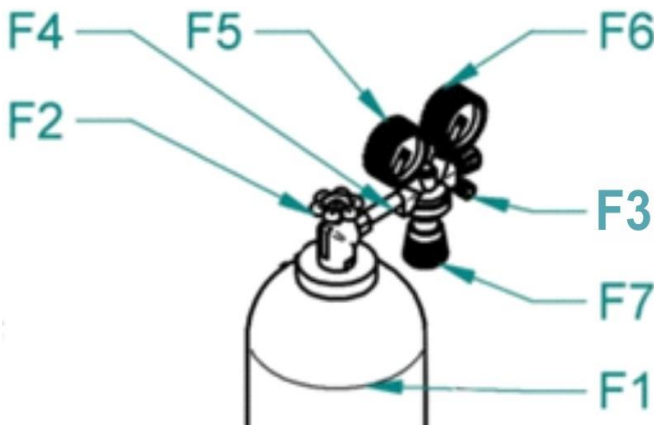


Fig. 12. Gas flow setting

Pos.	Description
F1	Gas bottle
F2	Cylinder Valve
F3	Fitting
F4	Pressure Reducer
F5	High-Pressure Manometer
F6	Low-Pressure Manometer
F7	Adjusting Screw

## ADJUSTING WELDING PARAMETERS FOR MIG SYN

1. Depending on your work, find the program number in the Synergy Parameter Selection submenu.
2. Use encoder **V1** to select the synergy parameter and confirm by pressing encoder **V1**.
3. Then select the appropriate welding parameters of encoders **V1** and **V5**.
4. Recommendation: We recommend selecting manual mode when welding for manual spotting (e.g., bodywork repairs).

## ADJUSTING WELDING PARAMETERS FOR MIN MAN

1. The approximate setting for the MIG / MAG welding current and voltage corresponds to the empirical relationship  $U_2 = 14 + 0.05 I_2$ . According to this relationship, we can determine the required voltage. When setting the voltage, we expect a decline in voltage during load. The voltage drop is approximately 4,8 V at 100 A.
2. Adjust the welding current by adjusting the desired welding current for the selected welding voltage by increasing or decreasing the wire feed speed until the arc burns optimally.
3. Adjust the arc hardness in the welding parameter settings submenu if necessary by adjusting the choke value.

Table of approximate parameter settings

Wire diameter (mm)	Welding current (A)
0,6	25 - 110
0,8	35 - 160
0,9	45 - 160
1,0	45 - 200

## ADJUSTING THE MACHINE FOR ANOTHER WIRE DIAMETER

ALFA IN MIG / MAG uses rolls with two grooves in all machines. These grooves are intended for two different wire diameters (e.g., 0,8 a 1,0 mm). Grooves can be replaced by removing and rotating the rolls or using different roll grooves with the required dimensions.

1. Open the nut **E1** to the forward (at 4-rolls wire feeder), and pressure rolls **E2** are opened upward.
2. Unscrew the plastic locking element and remove the roll.
3. If there is a suitable groove on the roll, rotate the roll and place it back on the shaft and secure it by screwing the element **E5**.

## FLUX CORE WIRE – SETTING THE POLARITY FOR MIG/MAG TORCH

1. It is desirable to have positive polarity on the MIG/MAG torch while welding with solid wire in most cases. The welder is supplied from the production with positive polarity on the MIG/MAG torch.
2. For welding with flux-cored wires, it may be necessary to have negative polarity on the MIG/MAG torch.
3. The middle terminal **K3** is connected to the central EURO connector of the MIG/MAG torch. We supply the welder with **K3** connected using the bridge **K2** to (+) **K1**.
4. Connect K3 using the bridge K2 with K4 (-) terminal when welding with a negative polarity flux core wire.
5. Make sure you fasten the terminals correctly.
6. Then connect the grounding cable to the quick connector (+), Fig. 1, pos. **A3**.

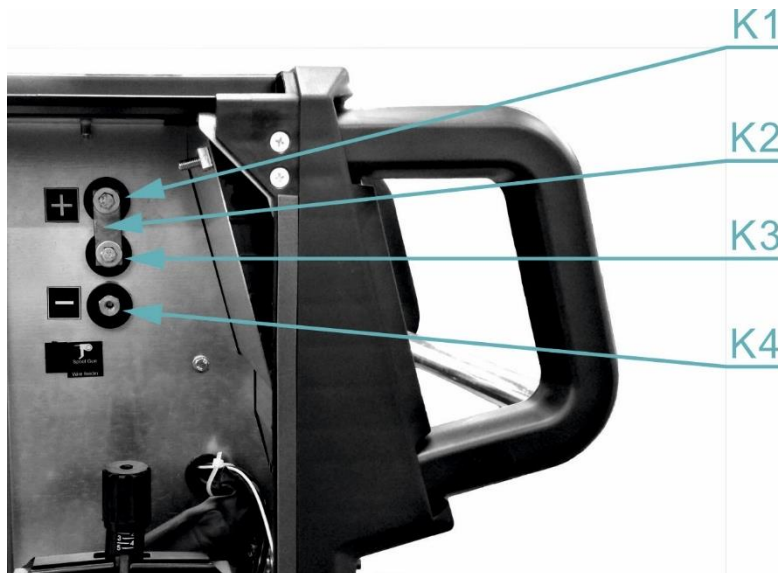


Fig. 13. Terminals for changing the polarity of the MIG/MAG torch

Pos.	Description
K1	Upper terminal (+)
K2	Bridge
K3	Middle terminal
K4	Lower terminal (-)

### Notice

If you want to weld with flux core wire, removing the gas nozzle of the torch before starting welding is necessary. Furthermore, you must not touch the weldment with the die during welding. There would be a risk of baking the wire.



## ADJUSTING THE MACHINE FOR WELDING OF ALUMINIUM

For feeding the aluminium wire, it is necessary to use a roll with the "U" profile - see paragraph OVERVIEW OF ROLLS FOR WIRE FEED. To prevent problems with feeding, use wires with a diameter of 1,0 mm of AlMg3 or AlMg5. The alloy Al99,5 or AlSi5 wire is too soft and can quickly cause movement problems.

It is also necessary to provide the torch tefl for the aluminium welding, liner and unique current nipple. We do not recommend you use the torch longer than 3 m. It is crucial to carefully adjust the contact power of rolls to prevent any possible wire deformation, which can occur if the power is too high.

As a protective atmosphere, it is necessary to use argon.

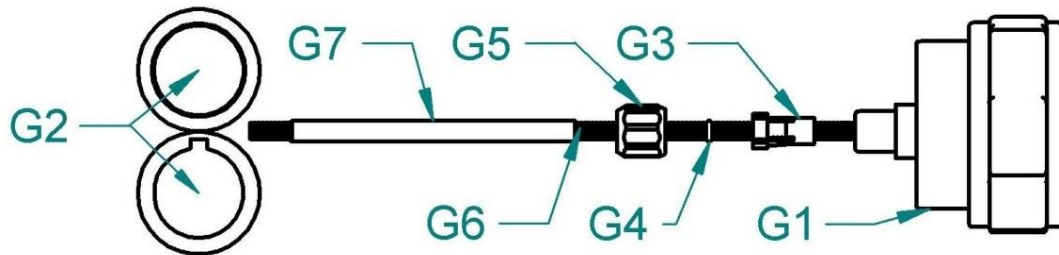


Fig. 14. Customization of the feed for the aluminium wire

Pos.	Order No.	Description
	6050	Set for Aluminium with roll AL 22/30 0,8-1,0
G1		EURO connector
G2		Rolls
G3		Liner terminal (part of liner G6)
G4		O-ring 3,5 x 1,5mm to prevent escape of gas (part of liner G6)
G5		Nut (part of EURO connector G1)
G6		Liner tefl.
G7		Support tube D4,4/5,0 200mm



**TABLE OF WIRE CONSUMPTION DURING WELDING**

Wire diameter [mm]	Range of wire feed speed [m/min]	Maximal wire feed speed [m/min]	Weight of 1 m wire [g]	Wire consumption per 1 minute of welding [g/min]	Wire consumption per 1 hour of welding [g/hour]
<b>Steel wire</b>					
0,6	2 - 5	5	2,3	11,5	690
0,8	3 - 6	6	4	24	1440
1,0	3 - 12	12	6	72	4320
1,2	4 -18	18	9	162	9720
<b>Stainless steel wire</b>					
0,6	2 - 5	5	2,3	11,5	690
0,8	3 - 6	6	4	24	1440
1,0	3 - 12	12	6	72	4320
1,2	4 -18	18	9	162	9720
<b>Aluminium wire</b>					
0,6	2 - 5	5	0,8	4	240
0,8	3 - 6	6	1,3	7,8	468
1,0	3 - 12	12	2	24	1440
1,2	4 -18	18	3	54	3240

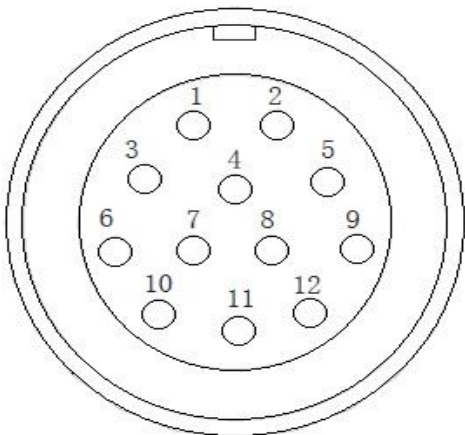
**TABLE OF GAS CONSUMPTION DURING WELDING**

Wire diameter [mm]	Gas flow [l/min]	Gas consumption per 1 hour of welding [l/hour]
0,6	6	$6 * 60 = 360$
0,8	8	$8 * 60 = 480$
1,0	10	$10 * 60 = 600$
1,2	12	$12 * 60 = 720$
1,6	16	$16 * 60 = 960$
2,0	20	$20 * 60 = 1200$

## 8. MACHINE PREPARATION FOR TIG METHOD

### TIG TORCH WIRING DIAGRAM

5737 CONNECTOR 12 PIN MALE					
PIN NO.	MMA	FOOT PEDÁL	SPOOL GUN	TIG TORCH	MIG TORCH
1	/	/	(-) SPOOL GUN	/	(-) SPOOL GUN
2	/	/	/	/	(+) SPOOL GUN
3	/	/	/	/	(+) POTENTIOMETER
4	/	/	(+) SPOOL GUN	/	POTENTIOMETER CENTER TAP (CENTER)
5	/	/	/	(+) POTENTIOMETER	(-) POTENTIOMETER
6	/	/	/	(-) POTENTIOMETER	/
7	/	/	/	SIGNAL POTENTIOMETER TIG	/
8	/	/	/	START/STOP	START/STOP
9	/	/	/	START/STOP (GND)	START/STOP (GND)
10	/	/	/	/	/
11	/	/	/	/	/
12	/	/	/	/	SPARE LINE



1. Connect the TIG torch to the quick connector **A4** (-). Next, connect the gas connector and torch connector.
2. Connect the grounding cable to the quick connector **A3** (+) and the grounding clamps to the welder or the welding table.
3. Connect the machine with the mains plug to the 1x230 V/50-60 Hz (1x110 V/50-60 Hz) mains supply and switch it on using the main switch **V6** on the front panel.
4. Connect the gas hose and gas flow adjustment described in the **Adjustment of gas flow**.
5. Select **TIG Lift** in the method selection submenu. See Chapter 7. **Main menu**.
6. Set the desired current using encoder **V1**.
7. In the submenu for welding parameters, you can change the time of PRE-GAS or POST-GAS.

#### TABLE OF CONSUMPTION DURING TIG WELDING

Wolfram electrode diameter [mm]	Argon flow [l/min]
	Steel / stainless steel
0,5	3 – 4
1,0	3 – 5
1,6	4 – 6
2,4	5 – 7
3,2	5 – 9

## 9. MACHINE PREPARATION FOR MMA METHOD

1. Connect the electrode holder, and the work led to quick connectors A3 and A4 according to the instructions on the electrode package.



**Notice** Prevent touching the electrode to any metallic material because in this mode, when the machine is switched on, there is still welding voltage on the quick couplers and EURO connector of the welding machine.

2. In the method selection submenu, select the **MMA electrode**. See Chapter 7. **Main menu**.
3. Set the desired current with encoder V1.

**TABLE OF ELECTRODE CONSUMPTION DURING WELDING**

Electrode diameter [mm]	Range of welding current [A]	Total electrode length [mm]	Weight of boiled electrode without slag [g]	Boiled electrode time [s]	Weight of boiled electrode without slag per 1 second [g/s]
1,6	30 - 55	300	4	35	0,11
2,5	70 - 110	350	11	49	0,22
3,2	90 - 140	350	19	60	0,32
4,0	120 - 190	450	39	88	0,44

**10. ROUTINE MAINTENANCE & INSPECTION**

The equipment requires minimal care and maintenance under normal working conditions. To ensure a long and trouble-free service life of the equipment, certain principles should be followed:

1. Our service personnel or a trained electrical technician may only open the machine.
2. Occasionally the condition of the main plug, main cable, and welding cables must be checked.
3. Once or twice a year, blow the entire equipment with pressurized air, especially the aluminium cooling profiles. Beware of the risk of damage to electronic components by the direct impact of compressed air from a short distance!

**CHECKING THE OPERATIONAL SAFETY OF THE MACHINE ACCORDING TO EN 60 974-4**

The prescribed test operations, procedures, and required documentation are specified in EN 60974-4.

**ERROR MESSAGES**

Type of error	Error code	Description	Solution
Thermal switch	E01	Thermal switch 1	Do not turn off the machine. Wait until the machine has cooled down.
	E02	Thermal switch 2	
	E09	Program over thermal protection	

# 11. SERVICE

## STATEMENT OF WARRANTY

1. Following the warranty periods stated below, ALFA IN guarantees that the proposed product is free from material or workmanship defects when operated per the written instructions defined in this operating manual.
2. ALFA IN welding products are manufactured for commercial and industrial users and trained personnel with experience using and maintaining electrical welding and cutting equipment.
3. The statutory warranty period is 6 months from the sale of the machine to the buyer. The warranty period begins when the machine is handed over to the buyer or on a possible delivery day. The manufacturer extends this period to 24 months. The warranty period does not include the time from the claim to when the machine is repaired.
4. It is a condition of the warranty that the welding machine is used in the manner and for its intended purposes. Damage to the welding machine shall not be considered as defects and abnormal wear and tear caused by lack of care or neglect of even apparently insignificant defects, failure to fulfil the owner's obligations, inexperience or reduced ability, failure to comply with the regulations specified in the operating and maintenance instructions, use of the machine for the purposes for which it is not intended, overloading the machine, even temporarily. The original manufacturer's parts must be used exclusively to maintain the machine.
5. During the warranty period, any modifications or changes to the machine that may affect the functionality of individual machine components are not permitted.
6. Warranty claims must be made immediately after discovering a manufacturing or material defect with the manufacturer or the dealer.
7. If a defective part is replaced during warranty repair, ownership of the defective part passes to the manufacturer.
8. A varistor is connected to the main supply to protect the machine from overvoltage. It is destroyed in case of prolonged overvoltage or more significant voltage surges. The warranty does not cover this failure.
9. The proof of purchase (invoice) with the product's serial number or the warranty card on the last page of this manual serves as the warranty card.

## WARRANTY AND POST-WARRANTY REPAIRS

1. Warranty repairs are performed by the manufacturer or a service organization authorized by him.
2. The procedure is similar in the case of post-warranty repairs.

3. Report the complaint to e-mail: [servis@alfain.eu](mailto:servis@alfain.eu) or to the phone number +420 563 034 626. The operating hours of the service are from 7:00 to 15:30 every working day.

## 12. ELECTRIC WASTE DISPOSAL

### INFORMATION FOR USERS ON THE DISPOSAL OF ELECTRICAL AND ELECTRONIC EQUIPMENT IN THE CZECH REPUBLIC

ALFA IN a.s., as a producer, places electrical equipment on the market and is therefore obliged to ensure the take-back, treatment, recovery, and disposal of electrical waste.

ALFA IN a.s. is enrolled in the LIST of the collective system EKOLAMP s.r.o. (under manufacturer's registration number 06453/19-ECZ).



This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

The device must be disposed of at separate collection and collection points.

EKOLAMP s.r.o. You can find a list of places at: <http://www.ekolamp.cz/cz/mapa-sbernych-mist>.

### FOR USERS IN EUROPEAN UNION COUNTRIES

Contact your dealer or supplier for the necessary information to liquidate electrical and electronic equipment.

## 13. WARRANTY LIST

A warranty list serves as proof of purchase (invoice) which contains the machine's serial number, and eventually, a warranty list below, which an authorized dealer fills in.

Serial number:	
Day, month (written in words), and year of sale:	
Stamp and dealer signature:	