

**WELDING MACHINE**

**aXe 200 IN PFC**

**OPERATING MANUAL**

**CONTENT**

1. INTRODUCTION.....	3
2. SAFETY INSTRUCTIONS AND WARNINGS .....	4
3. TECHNICAL DATA .....	7
4. EQUIPMENT .....	7
5. OPERATOR CONTROLS .....	9
6. GETTING STARTED MIG/MAG .....	14
7. GETTING STARTED TIG .....	21
8. GETTING STARTED MMA.....	23
9. ROUTINE MAINTENANCE & INSPECTION .....	23
10. STATEMENT OF WARRANTY .....	24
11. DISPOSAL .....	25
12. WARRANTY LIST.....	25

# 1. 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 has been designed to instruct you on the correct use and operation of your ALFA IN product. 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 will help you to avoid potential hazards that may exist when working with this product.

Read and understand this entire Manual and your employer's safety practices before installing, operating, or servicing the equipment. While the information contained in this Manual represents the Manufacturer's best judgement, the Manufacturer assumes no liability for its use.

The model of aXe 200 IN PFC is the multi-function inverter power generators welding by those 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 shelf shielding or standard.
- b) E – (MMA) coated electrodes up to 4,0 mm
- c) TIG lift arc

aXe 200 IN PFC is equipped by system of Power Factor Correction (PFC) – which enables operating on AC power supply of 95V – 270V.

## What are the advantages of PFC solution?

1. Higher efficiency and less stress related to the circuit breaker (in other words, circuit breaker will switch off later than the devices without PFC)
2. The machine can be connected to the mains 110 V - 230 V + -15% Small influence of under voltage and overvoltage mains power
3. Smaller level of electromagnetic interference
4. Minimum net reactive current loading

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



## 2. SAFETY INSTRUCTIONS AND WARNINGS


1. Once the packing has been opened, make sure that the machine is not damaged. If in any doubt, call the service centre.
2. This equipment must only be used by qualified personnel.
3. During installation, any electric work must only be carried out by trained personnel.
4. The machine must be used in a dry place with good ventilation.
5. Make sure that no metal dust can be drawn in by the fan inside the machine, as this could cause damage to the electronic circuits.
6. It is prohibited to connect more than one INVERTER generator in series or in parallel.
7. When installing the machine, follow the local regulations on safety.
8. The position of the machine must allow easy access by the operator to the controls and connectors.
9. When the welding machine is operating, all its covers and doors must be closed and well fixed.
10. Do not expose the welding machine to direct sunlight or to heavy rain. This equipment conforms to protection rating IP23S.
11. During welding, the welding cables must be located near or at ground level. They should be as short as possible.
12. The operator must wear gloves, clothes, shoes, and a helmet or a welder's helmet, which protect and are fire-resistant in order to protect him against electric shock, flashes and sparks from welding.
13. The operator must protect his eyes with safety visor or mask designed for welding, fitted with standard safety filters. He should also be aware that during electrical welding ULTRAVIOLET RADIATION is emitted. Therefore it is vital that his face is also protected from radiation. Ultraviolet rays produce the same harmful effect as sun burning on unprotected skin.
14. The operator is obliged to warn anyone near the welding area of the risks that welding involves and to arrange to provide adequate protection equipment.
15. It is very important to arrange for sufficient ventilation, especially when welding in enclosed spaces. We suggest using suitable fume extractors to prevent the risk of intoxication by fumes or gas generated by the welding process.
16. The operator must ensure all flammable materials are removed from the work area to avoid any risk of fire.
17. The operator must NEVER weld containers that have previously contained petrol, lubricants, gas or similar flammable materials, even if the container

has been empty for a considerable time. THERE IS A VERY HIGH RISK OF EXPLOSION.

18. The operator must be aware of all the special regulations which he needs to conform to when welding in enclosed spaces with a high risk of explosion.
19. To prevent electric shock, we strongly suggest the following rules:
20. Do not work in a damp or humid environment.
21. Do not use the welding machine if its cables are damaged in any way.
22. Make sure that the earthing system of the electric equipment is correctly connected and operational.
23. The operator must be insulated from the metal components connected to the return wire.
24. The earthing of the piece being worked could increase the risk of injury to the operator.
25. EN 60974-1 Standard: Open-circuit voltage. During the operation of the machine, the highest voltage, with which it is possible to come into contact, is the open-circuit voltage between the welding clamps. In our generator this voltage is 68V.
26. The maximum open-circuit voltage of the welding machines is established by national and international standards (EN 60974-1) depending on the type of weld current to be used, on its waveform and on the hazards arising from the work place. These values are not applicable to the strike currents and those for stabilisation of the arc that could be above it.
27. The open-circuit voltage, for as many adjustments as possible, must never exceed the values relating to the various cases shown in the following table:

Case	Working conditions	Open-circuit voltage	
1	Places with increased risk of electric shock	DC current: 113V peak value	AC current: 68V peak value and 48V effective
2	Places without increased risk of electric shock	DC current: 113V peak value	AC current: 113V peak value and 80V effective
3	Torches held mechanically with increased protection for the operator	DC current: 141V peak value	AC current: 141V peak value and 100V effective

28. In case 1, the dc welding machines with rectifier must be built in such a way that, in case of a fault developing in the rectifier (for example open circuit, short circuit or lack of power), the permitted values cannot be exceeded. The welding machines of this type can be marked with the

symbol: 

29. Before opening the machine switch off the machine and disconnect it from the power socket.
30. Only personnel authorised by this company can carry out maintenance on the machine.

**NOTE:**

Device complies with IEC 61000-3-12.

Working ambient temperature between -10 and +40 °C.

Relative humidity below 90% at +20 °C.

Up to 3000 m altitude.

The stability of the machine is guaranteed up to 10° inclination under the following conditions:

- a. The machine must be secured against rolling away
- b. The gas bottle with a maximum height of 0.9 m may be placed and properly anchored on the platform

It is necessary to protect the machine against:

- a. Moisture and rain
- b. Mechanical damage
- c. Draft and possibly ventilation of neighboring machines
- d. Excessive overloading – exceeding tech. parameters
- e. Rough treatment
- f. Chemically aggressive environments

**ELECTROMAGNETIC COMPATIBILITY**

The welding device is in terms of interference designed primarily for industrial areas. It meets the requirements of EN 60974-10 class A and it isn't designed for using in residential areas, where the electrical energy is supplied by public low-voltage power supply network. It can be here potential problems with ensuring of electromagnetic compatibility in this areas, due to interference caused by power lines as well as the radiated interference. During operation, the device may be the source of interference.

 Caution 

We warn users, that they are responsible for possible 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 - 140	10 - 120	10 - 120	25 - 200	10 - 200	10 - 200
Open-circuit voltage U <sub>20</sub>	V	68,0			68,0		
Mains protection	A	20 @			16 @		
Max. effective current I <sub>1eff</sub>	A	17,0	18,0	17,0	15,8	16,0	13,2
Welding current (DZ=100%) I <sub>2</sub>	A	90	80	90	140	120	150
Welding current (DZ=60%) I <sub>2</sub>	A	120	100	110	170	140	180
Welding current (DZ=x%) I <sub>2</sub>	A	30% = 140	30% = 120	35% = 120	35% = 200	30% = 200	40% = 200
Protection		IP 23S					
Standards		EN 60974-1, EN 60974-10 cl. A					
Dimensions (w x l x h) generator	mm	474 x 911 x 670					
Weight	kg	44,5					
Wire speed	m/min	1,5 - 16,5	---	---	1,5 - 16,5	---	---
Spool diameter	mm	300	---	---	300	---	---
Spool weight	kg	18	---	---	18	---	---

### 4. EQUIPMENT

#### PART OF DELIVERY

Item No.	Description
5.0286	aXe 200 IN PFC
VM0321-2	Hose Gas 3m Pegas quick connector 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**

<b>Item No.</b>	<b>Description</b>
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)
17FSL4ST	Torch PARKER SGT 17 4m 35-50 FX ST (TIG)
5847	Set Connectors PEGAS AC/DC Smart, 201 MIG SYN PFC, aXe 200 IN PFC
VM0253	Welding Cable Set 2x 3m 35-50 200A
	Rolls – see
	OVERVIEW OF ROLLS FOR WIRE FEED
6008	Pressure Reducer FIXICONTROL Ar 2 manometers
6124	Pressure Reducer BASECONTROL Ar 2 manometers
6125	Pressure Reducer BASECONTROL CO2 2 manometers
S777c.	Welding Helmet Barracuda S777C Black
4488	Wire 0.8 Coreshield 15 A D200 Self Shielding 4,5kg spool
6050	Set for Aluminium with roll AL 22/30 0,8-1,0
5950	Set SGT, SR 17/18/26d=1,6
5951	Set SGT, SR 17/18/26d=2,4
5952	Set SGT, SR 17/18/26d=3,2
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. OPERATOR CONTROLS

### MAIN PARTS OF THE MACHINE

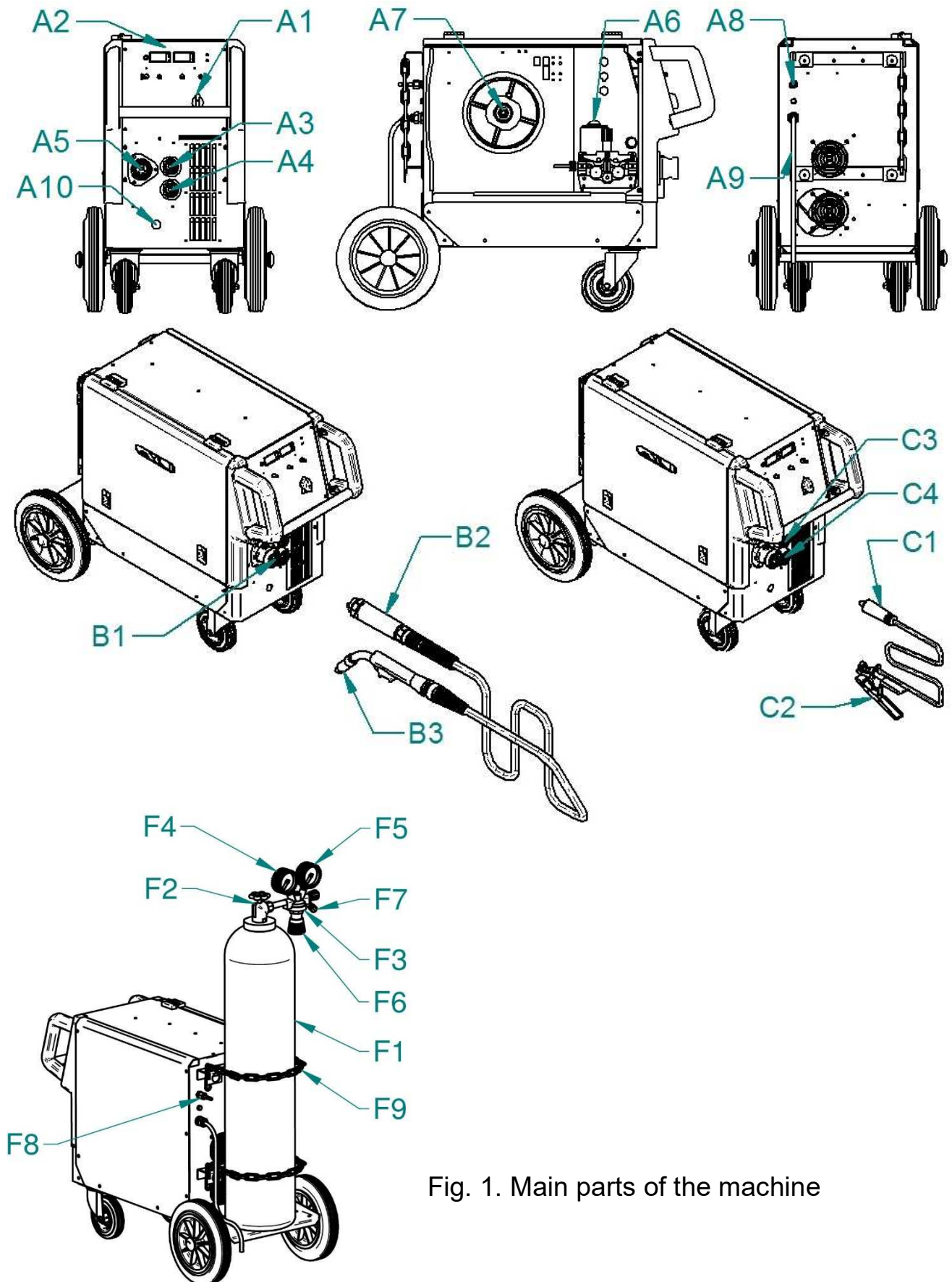


Fig. 1. Main parts of the machine

<b>Pos.</b>	<b>Description</b>
A1	Main 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
B1	EURO connector
B2	EURO connector male
B3	Torch
C1	Quick connector male
C2	Earthing 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	Soneloid valve
F9	Chain

## CONTROL PANEL

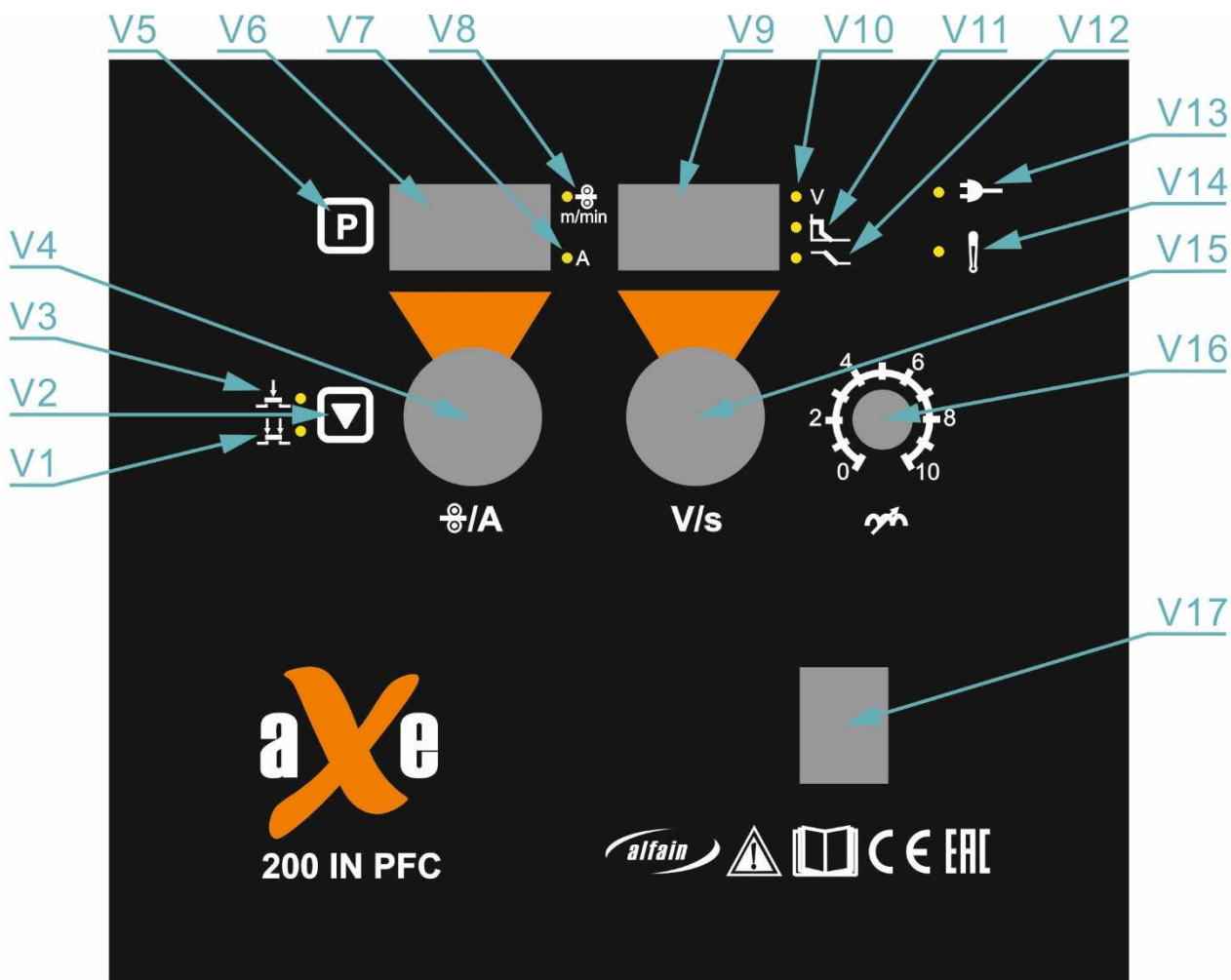


Fig. 2. Control panel

Pos.	Description
V1	LED. If it lights, the mode 4T has been selected.
V2	Button: 2T / 4T
V3	LED. If it lights, the mode 2T has been selected.
V4	Encoder Wire speed for MIG/MAG Current for MMA and TIG
V5	Button: method selection (MIG/MAG, MMA, TIG)
V6	Display
V7	LED. If it lights, on the left display is shown welding current in A.
V8	LED. If it lights, on the left display is shown wire feed speed in m/min.
V9	Display

V10	LED. If it lights, on the right display is shown voltage in V.
V11	LED. If it lights, on the right display is shown value of ARC FORCE.
V12	LED. If it lights, on the right display is shown time of DOWN SLOPE in s.
V13	LED. If it lights, the machine is switched on.
V14	LED alarm (If it lights, in mains is overvoltage or undervoltage, or the machine is overheated.)
V15	Encoder Voltage for MIG/MAG Correction for MMA DOWN SLOPE for TIG
V16	Choke potentiometer
V17	Main switch

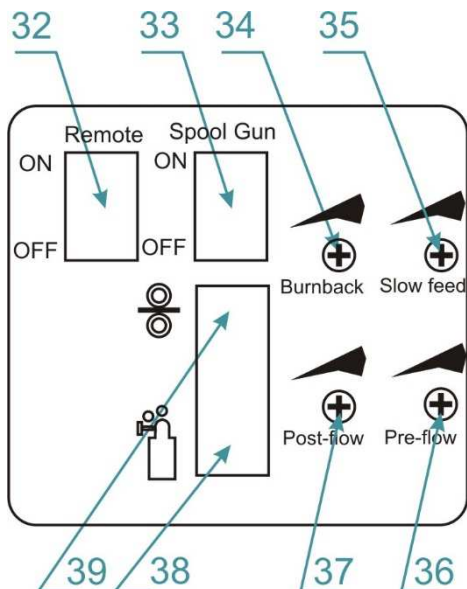


Fig. 3. Secondary control panel – panel in the space of the wire feeder

Pos.	Description
32	Switch Remote. ON – on the remote control OFF – of the remote control
33	Switch Spool Gun. In the ON position one can weld with the Spool Gun
34	Potentiometer for the BURNBACK time setting
35	Potentiometer for the initial wire speed setting
36	Potentiometer for the PRE GAS time setting

37	Potentiometer for the POST GAS time setting
38	Gas setting button
39	Wire feeding button

## WIRE FEEDER

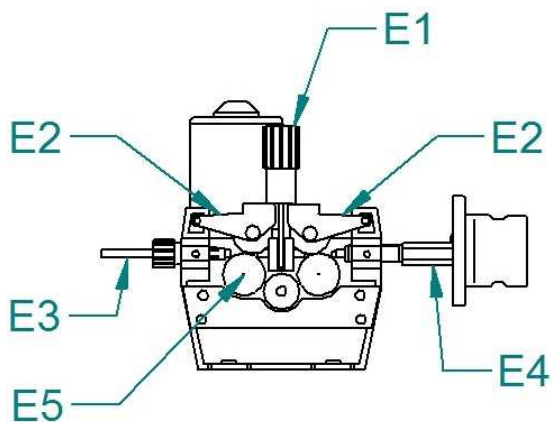
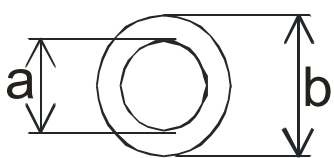
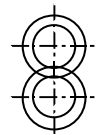
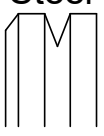
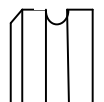
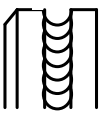


Fig. 4. Wire feeder

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

## OVERVIEW OF ROLLS FOR WIRE FEED

				
			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. GETTING STARTED MIG/MAG

Getting started must be consistent with technical data and conditions of use.

### CHOOSING THE FEEDING ROLL

In all machines (ALFA IN MIG / MAG) rolls with two grooves are used. 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 leads to a poor quality of welding and deformation of the wire.

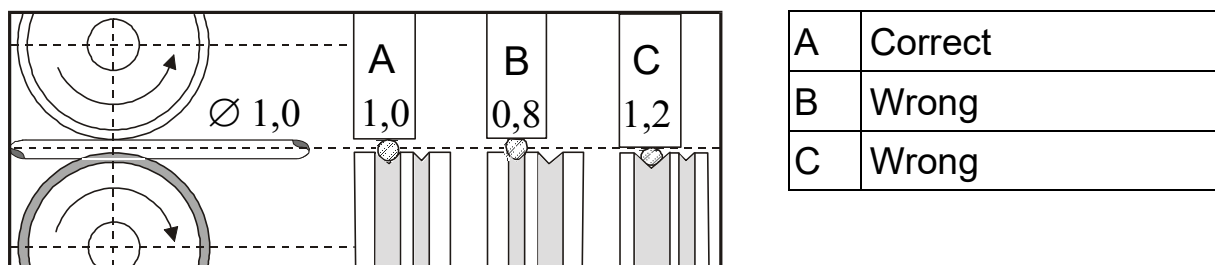
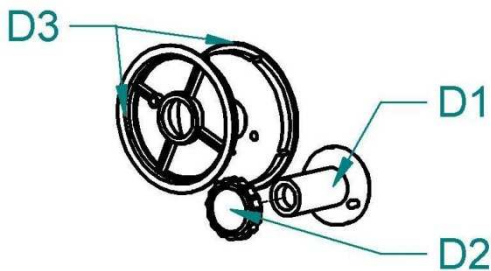


Fig. 5. The influence of the roll groove on the welding wire

## 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 welding wire and lead it through the inlet liner **E3**, and the roll into the liner inside the EURO torch connector (about 5 cm). Make sure, that you use the suitable groove.
4. Put the pressure arm **E2** down in that way, that the teeth or the gear fit and fix it by setting the lever **E1** into vertical position.
5. Adjust the pressure nut that way that it provides constant movement of wire but it does not deform wire. The adjusting screw is located under the plastic screw **E1**.
6. The spool brake is set by the manufacturer. If necessary, the brake can be adjusted by a screw **D1** so that while stopping the feed, spool will be stopped on time (it will avoid excessive release of wire). However, 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. 6. Spool holder

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

1. Connect the MIG/MAG torch to the EURO connector **A5** on the machine while the machine is turned off.
2. Connect the earthing cable to the quick connector **A4** (-).
3. Connect the earthing clamps to the welder or to the welding table.
4. ⚠Notice⚠ When inserting the wire, do not point with torch to the eyes!
5. Remove the gas nozzle from the torch.
6. Unscrew the current nozzle.
7. Connect the machine to power supply.
8. Turn the main switch **A1** on the front panel to ON.
9. By means of the button **V5** and encoder **V15** select required MIG/MAG program.
10. By means of the button **V2** select 2T or 4T, appropriate LED **V1** or **V3** will light.
11. Press the button **39** in the space of the wire feeder. The welding wire is fed into the torch. After coming off from the torch tube, screw the current

nozzle and gas nozzle on.

12. Before welding, spray the area in a gas hose and current nozzle with a separation spray, to prevent damage.

## ADJUSTMENT OF GAS FLOW

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

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

1. Connect the gas hose to gas outlet **F8** on the valve and the gas inlet to the gas valve **A8**.
2. Press the button **38** in the space of the wire feeder.
3. 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.
4. After long-term shutdown of the machine or replacement of the torch it is suitable to blow the pipes with protective gas before welding.

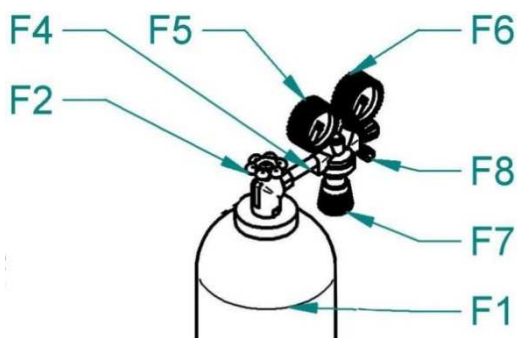


Fig. 7. Gas flow setting

Pos.	Description
F1	Gas bottle
F2	Cylinder Valve
F4	Pressure Reducer
F5	High Pressure Manometer
F6	Low Pressure Manometer
F7	Adjusting Screw
F8	Gas outlet








## ADJUSTING WELDING PARAMETERS FOR MIG SYN

Synergic curves are created for PA welding positions - horizontally from above. Perform the correction of welding arc for welding in other positions.

Program No. 13 is created for wire 0,8 Coreshield 15A D200/4,5 kg self-shielding (Order No. 4488). You don't need protective gas for welding with this wire (in this case you weld without gas nozzle on the torch).

Recommendation – For perfect manual tack welding (for example for car bodywork repairs) use the machine in the MIG Manual mode.

1. Open the door of wire feeder space. On the door is program table (program table is in the text below, too).
2. Select the program number according to the work, which you will do. (For example: if you want to weld steel with solid wire (solid wire has diameter 0,8) and you have available the mixed gas 82% Ar + 8% CO<sub>2</sub>. This corresponds to the program number 8.)

METHOD			Program No		
	MIG/MAG MANUAL		1		
	MMA		2		
	TIG		3		
	MIG/MAG SYNERGY		Ø Wire		
			0,6	0,8	1,0
Wire type	Material	Gas	Program No		
Solid	Fe	CO <sub>2</sub>	4	5	6
Solid	Fe	Mix	7	8	9
Solid	CrNi	Mix		10	11
Solid	Al	Ar			12
Flux.c.w	Fe	No Gas		13	
	Fe	Mix		14	

3. Press the button **V5** and by means of the encoder **V15** choose program number.
4. By pressing the button **V5** confirm the choice.
5. By means of the encoder **V4** choose the appropriate welding current.
6. By means of the encoder **V15** modify the voltage correction (if needed).
7. By means of the potentiometer **V16** modify the welding arc by changing the level of choke.

## ADJUSTING WELDING PARAMETERS FOR MIG MAN

1. Approximate setting for the MIG / MAG welding current and voltage corresponds 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 the decline in voltage during load. The voltage drop is approximately 4,8 V at 100 A.

2. By means of the encoder **V15** select voltage.
3. Then by means of the encoder **V4** select the appropriate wire speed.
4. By means of the potentiometer **V16** tune the arc by changing the levels of choke.

Wire diameter (mm)	Welding current (A)	Material thickness (mm)
0,6	25 - 110	1,0 - 1,6
0,8	35 - 160	1,0 - 2,3
0,9	45 - 160	1,0 - 2,3
1,0	45 - 200	1,2 - 7,0

Table of approximate parameter settings

### ADJUSTING THE MACHINE FOR ANOTHER WIRE DIAMETER

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

1. Open the nut **E1** to the forward (at 4-rolls wire feeder), pressure rolls **E2** will be 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.

### 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 majority of 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 by means of the bridge **K2** to (+) **K1**.
4. In case of welding with flux core wire with negative polarity, connect **K3** by means of the bridge **K2** with **K4** (-) terminal.
5. Make sure you fasten the terminals properly.

6. Connect the earthing cable to the quick connector (+), fig. 1, pos. **A3**.

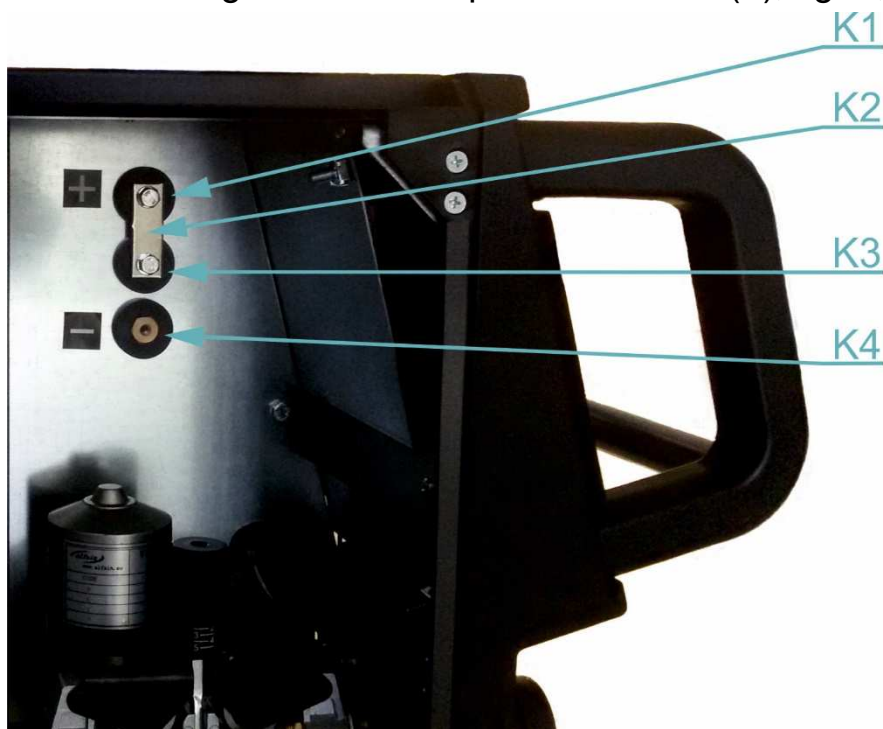


Fig. 8. Terminals for changing the polarity of the MIG/MAG torch

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

### **Notice**

In case, that you want to weld with flux core wire, it is first necessary to remove the gas nozzle of the torch before starting welding. Furthermore, during the welding process, you must not touch the weldment with the die. There would be a risk of baking the wire.

### **ADJUSTING THE MACHINE FOR WELDING OF ALUMINIUM**

For feeding the AL wire it is necessary to use roll with the “U” profile - see paragraph

OVERVIEW OF ROLLS FOR WIRE FEED. To prevent problems with feeding use wires with diameter 1,0 mm of AlMg3 or AlMg5. Wire of alloy Al99,5 or AlSi5 are too soft and easily will cause problems with movement.

For the aluminium welding it is also necessary to provide the torch tefl. liner and special current nipple. We do not recommend you to use the torch longer than 3 m. Great attention must be paid to adjust the contact power of rolls – it must not be too high, otherwise there is a deformation of the wire.

As a protective atmosphere is necessary to use argon.

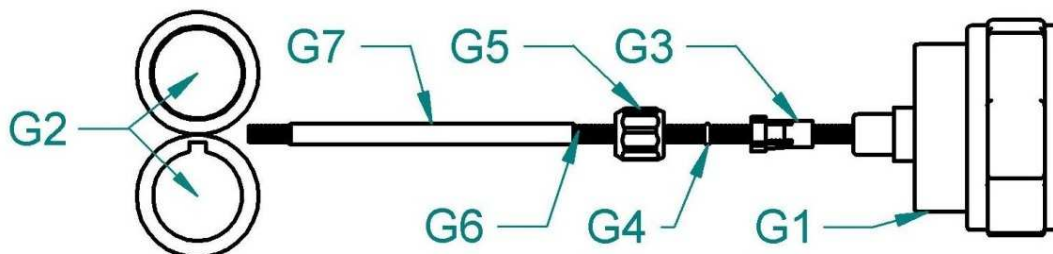


Fig. 9. Customization of the feed for the aluminium wire

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>Aluminum 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	$20 * 60 = 1200$

## 7. GETTING STARTED TIG

Getting started must be consistent with technical data and conditions of use.

1. Connect the TIG torch to the quick connector **A4** (-), next connect the gas connector and torch connector.
2. Connect the earthing cable to the quick connector **A3** (+) and the earthing clamps to the welder or to the welding table.
3. Connect the machine to power supply and turn the main switch **A1** on the front panel to ON.
4. Connect the gas hose and gas flow adjustment described in ADJUSTMENT OF GAS FLOW.
5. Press the button **V5** and by means of the encoder **V15** choose the program number 3.
6. By pressing the button **V5** confirm the choice.
7. By means of the encoder **V4** set the appropriate welding current.
8. By means of the encoder **V15** you can set the time of DOWN SLOPE.
9. By means of the potentiometers **36** and **37** 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

## 8. GETTING STARTED MMA

Getting started must be consistent with technical data and conditions of use.

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



**NOTE** Prevent touching the electrode any metal material for in this mode the quick connectors **A3** and **A4** are under current.

2. Press the button **V5** and by means of the encoder **V15** choose the program number 2.
3. By pressing the button **V5** confirm the choice.
4. By means of the encoder **V4** set the appropriate welding current.
5. By means of the encoder **V15** you can change the level of ARC FORCE.

### 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

## 9. ROUTINE MAINTENANCE & INSPECTION

1. The only routine maintenance required for the AXE range of machines is a thorough cleaning and inspection, with the frequency depending on the usage and the operating environment.
2. **WARNING** Disconnect the AXE from the mains supply voltage before disassembling.
3. Special maintenance is not necessary for the control unit parts in the Welder. If these parts are damaged for any reason, replacement is recommended.
4. **CAUTION** Do not blow air into the welder during cleaning. Blowing air into the welder can cause metal particles to interfere with sensitive electronic components and cause damage to the welder.
5. To clean the welder, disconnect it from the mains supply voltage then open the enclosure and use a vacuum cleaner to remove any accumulated dirt and dust. The welder should also be wiped clean. If necessary, solvents that are recommended for cleaning electrical apparatus may be used.
6. Troubleshooting and repairing of AXE welding equipment should only be carried out only by suitably qualified or competent person.
7. A 'competent person' must be a person who has acquired through training,

qualification or experience, or a combination of them, the knowledge and skills enabling that person to safely carry out a risk assessment and repairs to the electrical equipment in question.

8. The person carrying out the servicing needs and repairs must know what to look at, what to look for and what to do.

## 10. STATEMENT OF WARRANTY

1. In accordance with the warranty periods stated below, ALFA IN guarantees the proposed product to be free from defects in material or workmanship when operated in accordance with the written instructions as defined in this operating manual.
2. ALFA IN welding products are manufactured for use by commercial and industrial users and trained personnel with experience in the use and maintenance of electrical welding and cutting equipment.
3. ALFA IN will repair or replace, at its discretion, any warranted parts or components that fail due to defects in material or workmanship within the warranty period. The warranty period begins on the date of sale to the end user.
4. If warranty is being sought, please contact your ALFA IN product supplier for the warranty repair procedure.
5. ALFA IN warranty will not apply to:
6. Equipment that has been modified by any other party other than ALFA IN's own service personnel or with prior written consent obtained from ALFA IN Service Department.
7. Equipment that has been used beyond the specifications established in the operating manual.
8. Installation not in accordance with the installation/operating manual.
9. Any product that has been subjected to abuse, misuse, negligence or accident.
10. Failure to clean and maintain (including lack of lubrication, maintenance and protection), the machine as set forth in the operating, installation or service manual.
11. Within this operating manual are details regarding the maintenance necessary to ensure trouble free operation.
12. 🖐️NOTE 🖐️Warranty repairs must be performed by either an ALFA IN Service Centre, an ALFA IN distributor or an Authorised Service Agent approved by the company ALFA IN.
13. As a warranty list serves proof of purchase (invoice) on which is the serial number of the machine, eventually a warranty list on the last page of this manual.



## 11. DISPOSAL



Only for EU countries. Do not dispose of electric tools together with household waste material.

In accordance with European Council Directive 2002/96/EC on electrical and electronic equipment waste and its implementation in accordance with national law, electric tools that have reached the end of their service life must be collected separately and returned to an environmentally compatible recycling facility.

recycling facility.

## 12. WARRANTY LIST

As a warranty list serves proof of purchase (invoice) on which is the serial number of the machine, eventually a warranty list below, which is filled in by an authorized dealer.

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