

**WELDING MACHINE**

**ALFIN 300 AC/DC**

**OPERATING AND MAINTENANCE MANUAL**

**CONTENT:**

1.	INTRODUCTION.....	3
2.	WORK SAFETY .....	4
3.	OPERATING CONDITIONS.....	5
4.	TECHNICAL DATA .....	7
5.	ACCESSORIES .....	7
6.	DESCRIPTION OF MACHINE AND FUNCTIONS.....	8
7.	COMMISSIONING .....	20
8.	MMA WELDING .....	25
9.	DC TIG WELDING .....	27
10.	AC TIG WELDING .....	30
11.	2-STROKE (2T) AND 4-STROKE (4T) MODES.....	35
12.	JOB MANAGEMENT .....	37
13.	RESET .....	38
14.	MAINTENANCE AND SERVICE TESTS .....	39
15.	SERVICE .....	39
16.	DISPOSAL OF ELECTRICAL WASTE.....	41
17.	WARRANTY.....	41


# 1. INTRODUCTION

Dear Consumer, ALFA IN a.s. thank you for purchasing our product, and we hope you will be satisfied with our machine.

The welding machine may only be operated by trained persons within the technical provisions. ALFA IN a.s. will not accept liability for damage caused by improper use. Please read these operating instructions carefully before putting the machine into operation.

The machines meet the requirements corresponding to the CE mark.

Use only original spare parts for maintenance and repairs. Our service department is, of course, at your disposal.

If the machine is marked with the following mark  on the nameplate or the control panel, it can be used for welding in areas with an increased risk of electric shock.

The ALFIN 300 AC/DC is an inverter welding current generator that welds in the following methods:

TIG AC

TIG DC


MMA

We reserve the right to make modifications and changes in case of printing errors, changes in technical parameters, accessories, etc., without prior notice. These changes may not be reflected in the instructions for use in paper or electronic form.



## 2. WORK SAFETY

### PERSONAL PROTECTION



1. For safety reasons, protective gloves must be worn when welding. These gloves protect you from electric shock (circuit voltage when idle). They also protect you from heat radiation and splashing hot metal droplets.
2. Wear sturdy, insulated footwear. Open shoes are not suitable as hot metal droplets can cause burns.
3. Do not look into the welding arc without face and eye protection. Always wear a good-quality welding hood with the protective filter intact.
4. Persons near the welding area must also be informed of the danger and provided with protective equipment.
5. A sufficient supply of fresh air must be ensured when welding, especially in small spaces, as welding produces harmful fumes.
6. Do not conduct welding near gas, oil, fuel, etc. tanks (even empty ones), as there is a risk of explosion.
7. Special regulations apply in areas with explosion hazards.
8. Welded joints that are subjected to high stress must meet special safety requirements. This applies in particular to rails, pressure vessels, etc. These joints may only be made by qualified welders with the necessary authorization.
9.  **Notice**  
Persons with implanted pacemakers must not work with the machines or move close to them! There is a risk of impairing the function of the pacemaker!
10. Stop welding immediately if the main cable is damaged. Do not touch this cable. Pull it out of the socket.

### SAFETY REGULATIONS



1. Before beginning any welding work, it is essential to become familiar with the welding machine and the safety regulations for metal welding and arc welding that are currently in effect in your country.
2. The CO<sub>2</sub> bottle of mixed gases must be handled following the regulations for working with pressure vessels.
3. The welder must use protective equipment.
4. When handling the machine using the lifting device, hang the machine on all the suspension eyes (not standard equipment, not possible on all ALFA IN machines). Other attachment methods are not permitted.
5. Before any intervention in the electrical part, removal of the cover or cleaning, the device must be disconnected from the mains.

### 3. OPERATING CONDITIONS

1. Commissioning of the instrument may only be carried out by trained personnel and only within the technical provisions. The manufacturer is not liable for damage caused by improper use and operation. Only use original ALFA IN spare parts for maintenance and repair.
2. The equipment complies with IEC 61000-3-12.
3. The welding machine is tested according to the IP23S degree of protection standard, which protects against solid bodies with a diameter greater than 12 mm and protection against water ingress falling in a vertical to oblique direction up to a slope of 60°.
4. Operating ambient temperature between -10 and +40 °C.
5. Relative humidity below 90% at +20 °C.
6. Up to 3000 m altitude.
7. The machine must be positioned so cooling air can enter and exit unhindered through the air slots. No electronic components are located in the cooling duct area, but care must be taken to ensure no metallic waste is drawn into the machine (e.g. during machining).
8. It is essential to conduct a regular inspection on the welding machine every 6 to 12 months, as per the regulations for the revision of electrical equipment in your country and the rules for welding and safety provisions for metal arc welding. It is recommended that an authorized employee perform the inspection.
9. All interventions in the electrical equipment and repairs (removal of the mains plug, replacement of fuses) may only be carried out by an authorized person.
10. The relevant mains voltage and power supply must correspond to the mains plug.

 **Notice**  If the machine has been moved from an area with a low temperature to a significantly warmer environment, condensation may occur, especially inside the welder. This will reduce the electrical strength and increase the risk of electrical flashover on voltage-stressed parts, seriously damaging the machine. If this situation occurs, leaving the welder at rest for about 1 hour is necessary until the temperature has equilibrated with the environment. This will stop any condensation. Only after this time has elapsed can the welder be connected to the mains and started.



11. The machine must be protected from:
  - a. Moisture and rain - it must not be operated in the rain!
  - b. Mechanical damage
  - c. Draughts and possible ventilation of adjacent machines

- d. Excessive overloading – exceeding technical parameters
  - e. Rough handling
12. The handling handle on machines with wheeled chassis is designed for travelling only and not for lifting the machine.
  13. Use only the designated transport equipment to transport the welder. Do not use a forklift or single crate to move.
  14. 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. The feed unit must not be mounted on the generator,
    - c. A gas cylinder with a maximum height of 0.9 m may be placed on the platform and properly anchored.
  15. The extension cables must not have conductors with cross-sections smaller than 3x2.5 mm<sup>2</sup> for single-phase machines. The machine may be operated on a single-phase power generator of 6 kVA (1x230V/50Hz) or more, with a voltage stabilization of ± 10%. Generators with lower power can damage the machine.  
 Notice  Due to the installed capacity's size, the distribution companies' approval may be required to connect the equipment to the public distribution network.

## **ELECTROMAGNETIC COMPATIBILITY**

Welding equipment is primarily designed for industrial environments in terms of EMI. It complies with EN 60974-10 class A requirements and is not intended for use in residential areas where the public low-voltage supply network supplies electricity. There may be potential problems with ensuring electromagnetic compatibility in these areas caused by line-propagated and radiated interference.

During operation, the equipment may be a source of interference.

 Notice  The user is advised that he is responsible for any interference from welding.

## 4. TECHNICAL DATA

Method		MMA	TIG
Mains voltage	V/Hz	3X400/50-60	
Welding current range	A	10 - 300	5 - 300
Open-circuit voltage $U_{20}$	V	59,0	9,0
Mains protection	A	20 @	
Max. effective current $I_{1eff}$	A	12,0	8,7
Welding current (DZ=100%) $I_2$	A	180	180
Welding current (DZ=60%) $I_2$	A	220	220
Welding current (DZ=x%) $I_2$	A	30%=300	30%=300
Protection		IP23	
Standards		EN 60974-1, EN 60974-10 cl. A	
Dimensions (w x l x h)	mm	230 x 460 x 325	
Weight	kg	23,0	

## 5. ACCESSORIES

### PART OF DELIVERY



Code	Name
5.0275	Alfin 300 AC/DC Inverter Welder
021.004.3360	Connector Alfin Orig.

### ACCESSORIES TO ORDER

#### Welding torches

Name	Cooling	Max. load DC	Max. load AC
PARKER SGT 18	Fluid	320A/100%	230A/100%
PARKER SGT 20	Fluid	220A/100%	160A/100%
PARKER SGT 26	Gas	180A/35%	130A/35%

A torch equipped with a potentiometer for remote control of the welding current can be connected to the machines.

 **Notice**  The torch must be selected according to the current range. ALFA IN a.s. is not responsible for damage to welding torches due to overload.

## Other accessories

Code	Name
VM0108	Welding Cable Set 2x 3m 35-50 315A
2307	Connector Set na HF complete
2368	Connector ALFIN remote cont 021.004.0602
5.0050	Remote CTRL complete 4m
006.003.0110	Remote CTRL foot pedal ctrl 10 m ALFIN
5.0225	CS 601 W Cooling Unit ALFIN AC/DC+ALFIN T
VM0151-1	Hose Gas 3m G1/4-G1/4
3549	Pressure Reducer AR OXY MAXI PC 2 manometry
5.0028	Trolley TIG

## 6. DESCRIPTION OF MACHINE AND FUNCTIONS

### FRONT PANEL

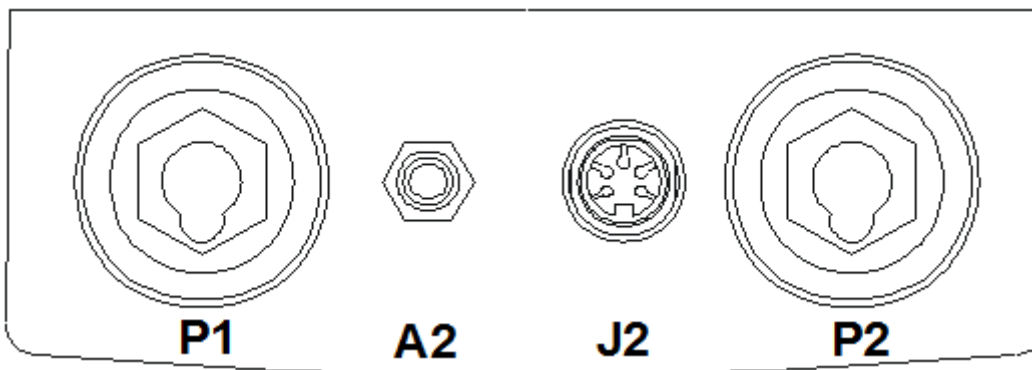


Fig. 1 Front panel

Pos.	Description
P1	(-) Welding cable quick connector
A2	Connector for torch gas hose connection
J2	Connector for control from the welding torch
P2	(+) Welding cable quick connector



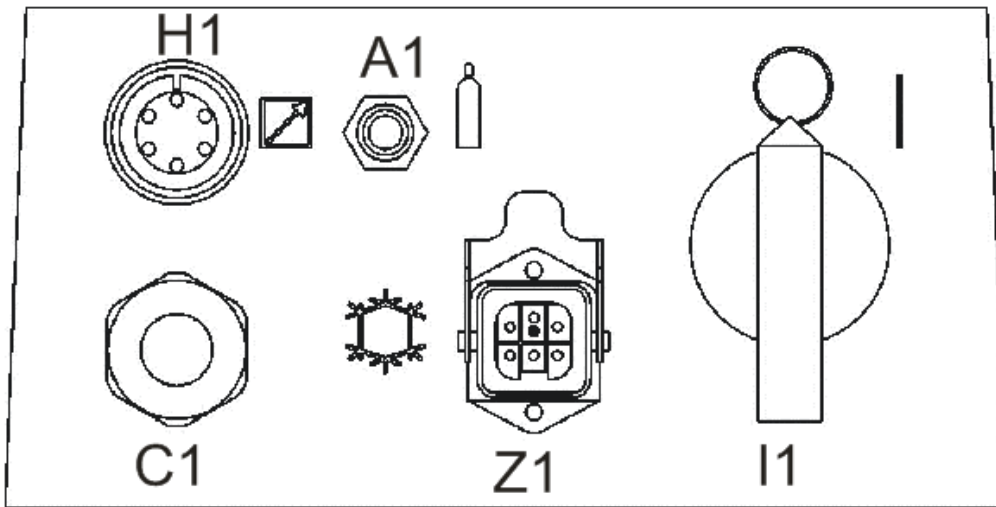
**BACK PANEL**

Fig. 2 Back panel

Pos.	Description
H1	Remote control connector
C1	Supply cable 4 x 2.5 mm <sup>2</sup> 3.5 m long
A1	Connector for connecting the gas hose from the gas cylinder
Z1	Connector for water cooling connection (If the water cooling is not connected, keep the connector covered with a cap, as the mains voltage is applied!)
I1	Main switch (When the main switch is in position I - on and the machine is switched in MMA mode, there is voltage between the + and - output terminals!)

## CONTROL PANEL

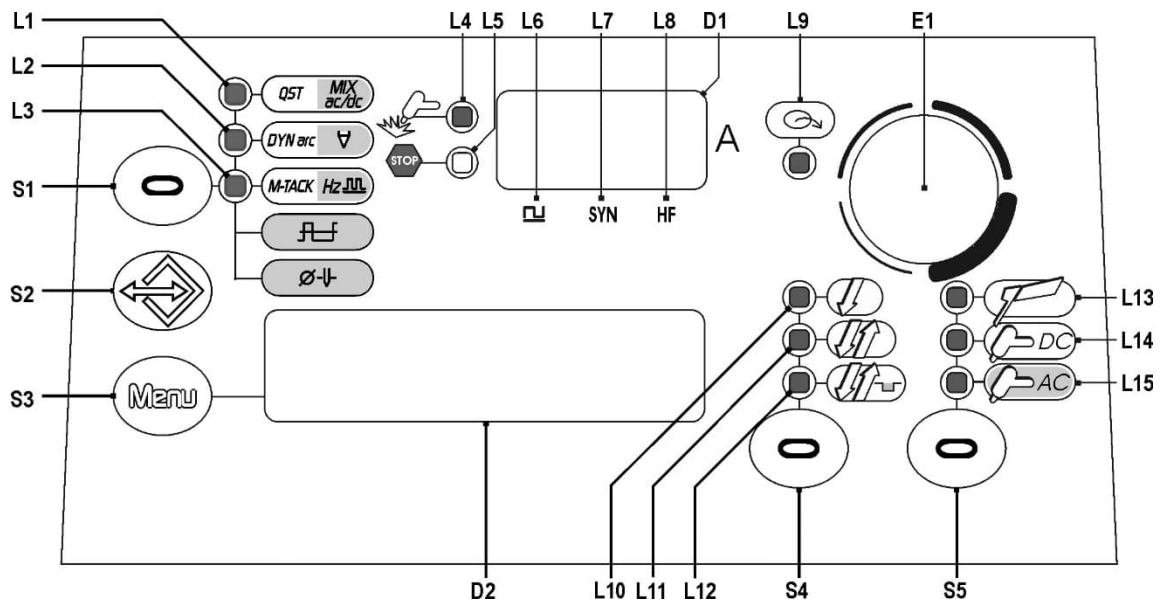















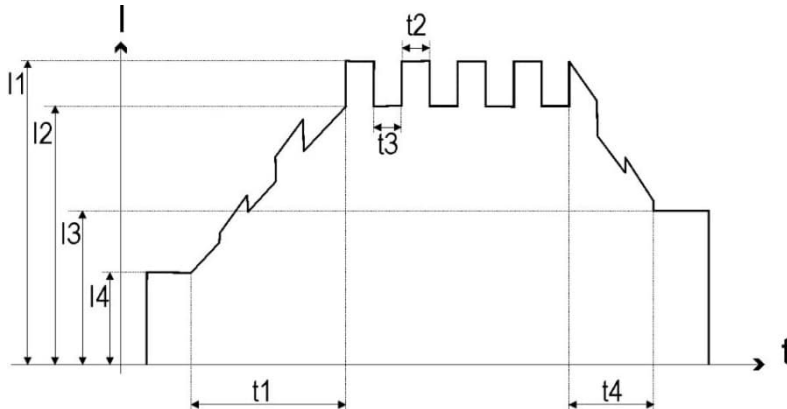
Fig. 3 Control panel

Pos.	Symbol	Function description
L1	<i>QST</i>	DC TIG light illuminates when the O-START function has been activated.
	<i>MIX ac/dc</i>	AC TIG light is on when the AC WAVE IN MIX AC/DC function has been activated.
L2	<i>DYN arc</i>	DC TIG light illuminates when the DYNAMIC ARC function has been activated.
	▽	AC TIG light illuminates when the FUSIONE EXTRA function has been activated.
L3	<i>M-TACK</i>	DC TIG light illuminates when the MULTI TACK function has been activated.
	Hz	AC TIG If the light is on, you can change the AC FREQUENCY parameter.
		AC TIG If the light is on, you can change the AC TIG BALANCE parameter.
	∅-V	AC TIG If the light is on, you can change the ELECTRODE DIAMETER parameter.
L4		Lights up when there is voltage at the output sockets.
L5		Lights up in case of error.

L6		Lights up when TIG PULSED mode has been selected.
L7	SYN	If lit, the TIG SYNERGY PULS method is selected.
L8	HF	
L9		If it is lit, the remote current setting is selected. If not lit, control panel adjustment is selected.
L10		If lit, 2T mode is selected. If the LED is flashing, double scoring mode is selected.
L11		If lit, 4T mode is selected.
L12		If lit, 4T BILEVEL mode is selected.
L13		If lit, MMA mode is selected...
L14		If lit, DC TIG mode is selected.
L15		If lit, AC TIG mode is selected.
D1		Displays welding current settings Displays the welding current values in A during welding. After welding, it displays the last measured value of the welding current - HOLD FUNCTION.
D2		Displays the selected parameters and their values
E1	Encoder	Changes the values of the welding current or the values of selected parameters.
S1		AC TIG: Press the button to select the parameter you want to set. EXTRA FUSION, AC FREQUENCY, AC TIG BALANCE.
S2		One press of the button opens the JOB menu. Holding the button for 3 seconds opens access to save/delete JOBS.
S3		One button press allows you to select the parameters of the first MENU level. Holding the button for 3 seconds opens access to the second MENU level

		If the button is held down with the machine switched off and then switched on (button held down), the SETUP MENU will open
S4	⊖	Mode selection button via torch button Selects 2T, 4T and BILEVEL
S5	⊖	Welding method selection button Select MMA, TIG DC and TIG AC

## DESCRIPTION OF FUNCTIONS AND TERMS



I1	Main welding current	t1	SLOPE UP
I2	BASE CURRENT	t2	PEAK CURRENT TIME
I3	Final current	t3	BASE CURRENT TIME
I4	Starting current	t4	SLOPE DOWN
		$1/t2+t3$	Pulse frequency

### Welding parameters

Welding current

Welding current output.

Maximum welding current

Maximum welding current that can be achieved with the remote control.

Hot-start

It facilitates ignition; the risk of high values is the burning of weaker materials, spattering during ignition and a large ignition area. A low value makes it harder to ignite the arc.

### Arc-force

It helps to reduce the risk of the electrode getting stuck in the welding bath. The weld is very fluid, and the arc is stable. The electrode penetrates more into the weldment, causing more spatter.

Consequences of a low value: The arc goes out more quickly. Less spatter.

### VRD

It reduces the voltage at the output when it is not welding. If the function is on, touching the weldment with the electrode is necessary when welding starts. Voltage is then delayed. The welding voltage will then be on the electrode for a few seconds.

### Long arc voltage

It maintains the arc even if the distance of the electrode from the weldment is more significant than usual. Consequences of high value: The arc is maintained even at a relatively large distance from the welding electrode. The consequence of a low value is that the arc is more easily extinguished.

### Remote control

Allows you to set the welding current from the remote control.

### Dynamic Arc

The welding current is maintained at the set value, even if the distance between the electrode and the weldment changes. The consequence of the high value is a constant welding power, preventing the electrode from sticking. The weldment can deform more easily.

### Second BILEVEL current

By quickly pressing and releasing the torch button during welding (for less than 0.5 seconds), the main welding current changes to the BILEVEL welding current.

In TIG DC welding, the BILEVEL welding current is helpful when welding materials of different thicknesses.

The BILEVEL welding current is useful in changing the heat output in TIG AC welding. When the weldment is heated to the point where there

is a risk of deformation, it is possible to reduce the current value by simply pressing the torch.

#### Base current

Minimum pulse current. The consequence of the high value is a faster formation of the melt bath. The thermally affected area is increased.

#### Peak time

The time for which the pulse current is at its maximum. The consequence of a high value is a higher penetration; the consequence of a lower value is a smaller thermally affected area, and it is harder to form a melt bath.

#### Base time

The time for which the pulse current is at its maximum. The consequence of a high value is a higher penetration; the consequence of a lower value is a smaller thermally affected area, and it is harder to form a melt bath.

#### Pulse frequency

The high-value results from a slower fusion rate and a smaller heat-affected area.

#### Slope down

The time it takes to reduce the welding current to the end current gradually.

#### End current

It allows the same appearance of the weld at the beginning and the end.

#### POST-GAS time

The time for which the shielding gas supply is ensured after the welding arc is extinguished.

### PRE-GAS time

The time for which the shielding gas supply is ensured before the welding arc is ignited.

### Starting current

Current after arc ignition.

### Slope UP

The time it takes to gradually increase the welding current from the starting current to the main welding current.

### TIG spot time

The arc is lit for a set period. The result is a very precise, unoxidized weld without deformation of the sheet metal.

### HF arc start

It ignites the TIG arc using HF current discharge. Prevents tungsten from entering the weldment. HF discharges can damage electronic devices.

### Minimum pedal current

Determines the minimum welding current achieved using the remote control or foot pedal. It is set as a percentage of the maximum welding current.

### Q-start

Creates a faster welding bath. The function is particularly suitable for spot joints on thin sheets.

### Multi-tack

Allows welding of thin sheets without deformation. The consequence of high values is the possibility to weld thin sheets without deformation. Less material is melted, and the welding process is slower.

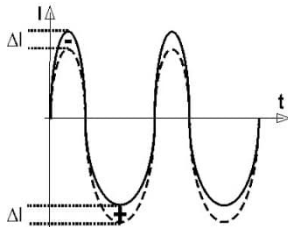
## AC pulse in AC/DC mode

Allows you to set the percentage time of the AC pulse relative to the DC. Consequences: more weld penetration, less deformation, faster weld bath formation, the "white" strip that forms next to the weld is narrower, and the arc extinguishes more easily.

## Extra Fusion

This parameter sets the percentage of the subtracted positive wave and added to the negative wave. Consequences of higher values: more stable arc, greater penetration, reduced cleaning ability, less electrode deformation.

The following figure shows part of the positive wave after subtraction from the positive wave and addition to the negative wave. The resulting wave is dashed.

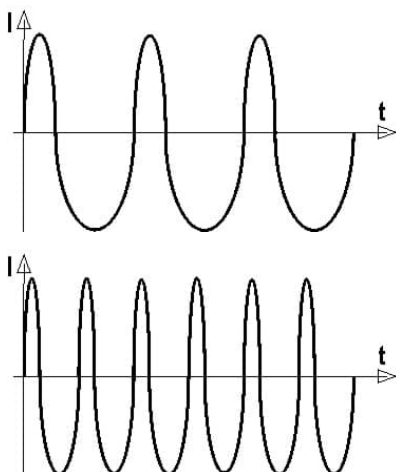


## AC frequency

Allows you to adjust the AC frequency.

Consequences of higher values: concentrated arc, reduced heat affected zone, slower melting speed.

The following figures show an example where the wave in the second graph has twice the wave's frequency in the first graph.





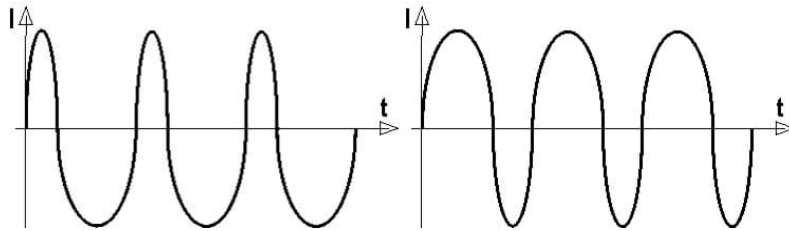
## AC balance

Allows you to adjust the balance of the positive to negative part of the wave.

Consequences of higher values: larger weld, the white stripe that appears next to the weld is narrower.

The following figures show graphs with different wave balances. The first graph represents a current curve with a more negative balance (larger sag), where the percentage of the positive part of the wave is low compared to the negative part.

The second graph represents a current curve with a more positive balance (more clearing). In this case, there is a higher percentage of the positive part of the wave than the negative part.



## PARAMETER ACTIVATION

Some welding parameters are only possible in a particular welding mode and when others are enabled. The table shows the possible settings of each parameter.

✓ always available

1: Available with an active user interface

2: Available with "remote control" = ON setting and remote control connected

3: Available with setting "HF ARC START" = ON

4: Not available with active parameter "MULTI TACK "

5: Available with parameter "PULSE TYPE " = slow

6: Available with parameter "PULSE TYPE " = fast

MENU	MODE →	DC				DC <sub>SIN</sub>				AC				AC				
		↓	↙ <sub>SPOT</sub>	↘	↗	↓	↙ <sub>SPOT</sub>	↘	↗	↓	↙ <sub>SPOT</sub>	↘	↗	↓	↙ <sub>SPOT</sub>	↘	↗	
↓	PROCEDURE →																	
	PARAMETER ↓																	
1°	WELDING CURRENT	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1°	MAX. WELDING CURRENT	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
1°	HOT-START	✓																
1°	ARC-FORCE	✓																
1°	PRE-GAS	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
1°	STARTING CURRENT	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1°	SLOPE UP	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
1°	SECOND BILEVEL CURRENT			✓														✓
1°	BASE CURRENT			✓														✓
1°	PEAK TIME			✓														✓
1°	PULSE FREQUENCY																	
1°	BASE TIME																	
1°	SLOPE DOWN	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

MENU ↓	MODE →	DC				DC <sub>SYN</sub>				AC								
		↓	↓ <sub>SPOT</sub>	↔	↔	↓	↓ <sub>SPOT</sub>	↔	↔	↓	↓ <sub>SPOT</sub>	↔	↔					
	PROCEDURE →																	
	PARAMETER ↓																	
1°	POST-GAS	✓	✓			✓	✓			✓	✓			✓	✓			✓
2°	VRD	✓																
2°	LONG ARC VOLTAGE	✓																
2°	REMOTE CONTROL	✓	✓			✓	✓			✓	✓			✓	✓			✓
2°	FINAL CURRENT	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
2°	TIG SPOT TIME		✓															
2°	MINIMUM PEDAL CURRENT	2	2			2	2			2	2			2	2			2
2°	HF ARC START	✓	✓			✓	✓			✓	✓			✓	✓			✓
2°	AC WAVE + FORM																	
SPECIAL	O-START	3 + 4	3 + 4	3 + 4	3 + 4	3 + 4	3 + 4	3 + 4	3 + 4									
SPECIAL	DYNAMIC ARC	✓	4			4	4											
SPECIAL	MULTI-TACK	3	3			3	3			3	3							
SPECIAL	AC PULS IN AC-DC MODE													✓	✓			✓
SPECIAL	EXTRA FUSION													✓	✓			✓
SPECIAL	AC FREQUENCY													✓	✓			✓
SPECIAL	AC BALANCE													✓	✓			✓
SPECIAL	ELECTRODE DIAMETER													✓	✓			✓

## 7. COMMISSIONING

The commissioning of the machine must be in accordance with the technical data and operating conditions.

**👉 NOTICE 👉** Only adequately trained persons may operate the machine.

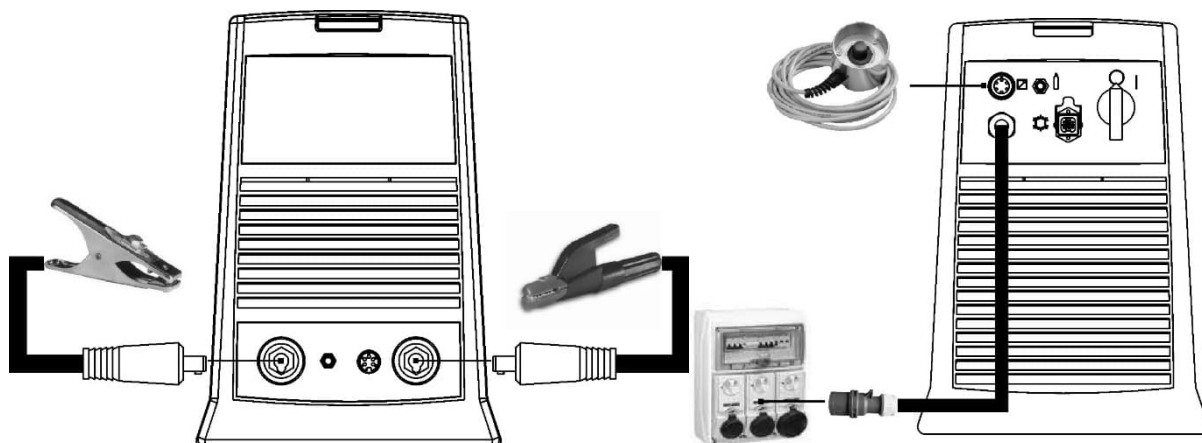
### CONNECTION TO THE POWER GRID

Connect the machine using the supplied mains plug to a power source in accordance with the technical data and operating conditions given in this manual.

### MACHINE PREPARATION FOR MMA MODE

1. Connect the electrode holder and ground cable to the quick connectors P1 (-) and P2 (+) following the polarity required by the electrode manufacturer on the electrode packaging.
2. Insert the electrode into the electrode holder.
3. Connect the cable with grounding clamps to the quick connector on the front panel.
4. Attach the pliers to the weldment.
5. Turn on the machine with the main switch on the rear panel and start welding.

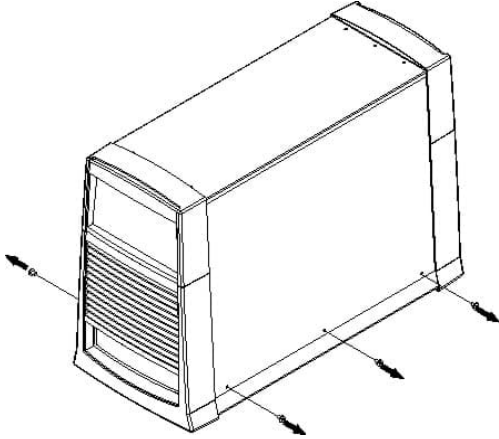
**👉 Notice 👉** Be careful that the electrode does not touch any metallic material because in this mode when the machine is switched on, the welding voltage is permanently applied to the quick couplers of the welding machine.



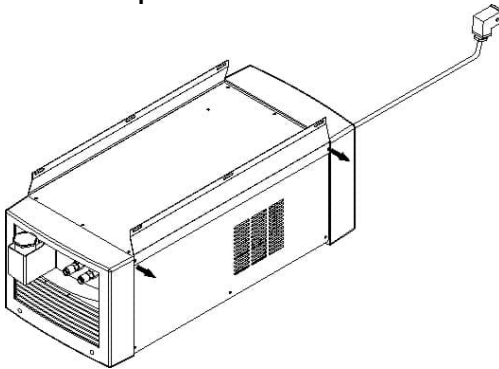
## MACHINE PREPARATION FOR TIG MODE

### Connecting the cooling unit

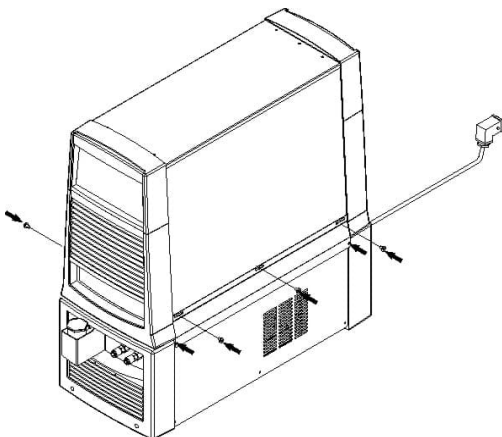
1. The cooling unit is not included in the delivery. It is an accessory on request.
2. Turn off the machine with the main switch.
3. Unscrew the screws, shown in picture below.



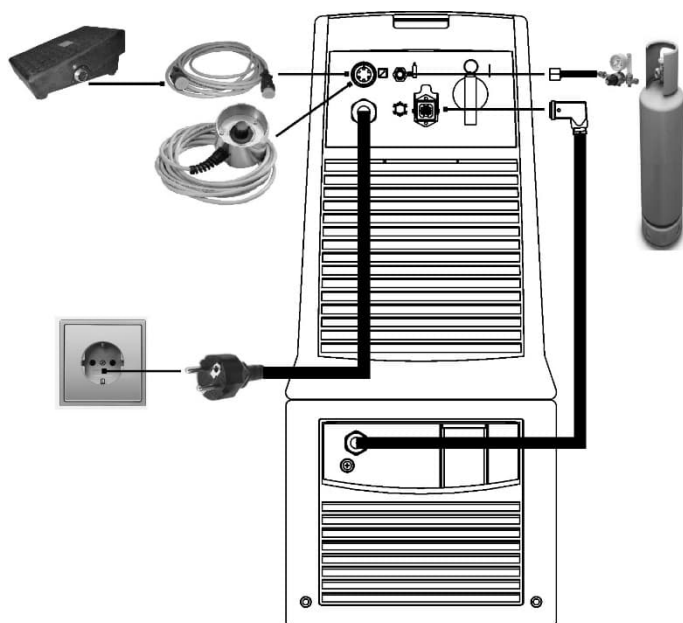
4. Loose 6pcs of the screws.



5. Place the ALFIN 300 AC/DC on top of the cooling unit.
6. Secure the connection of both devices by tightening the screws you previously removed from the welder.



6. Connect the elements as shown in the figure below.

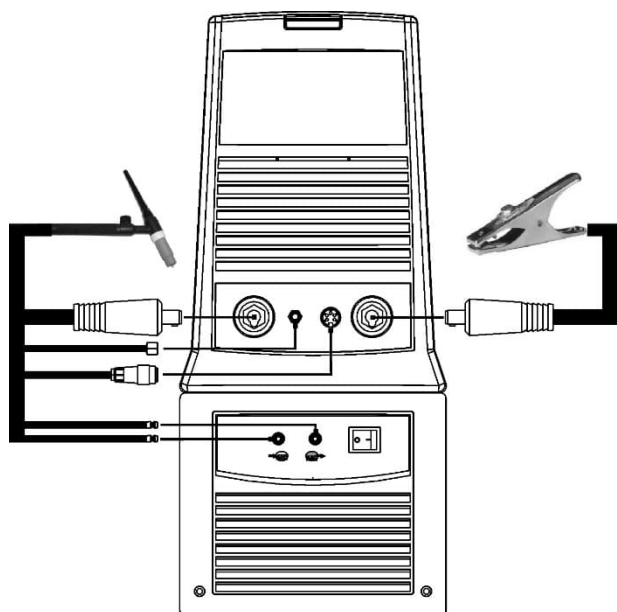


7. Switch on the cooling unit using the switch on the cooling unit.

8. Release the gas through the valve on the gas bottle and pressure-reducing valve. Adjust the gas flow through the pressure-reducing valve according to the type of welding.

### Machine preparation for TIG mode

1. Connect the TIG torch to the P1 (-) quick coupler
2. Connect the ground cable to the P2 (+) quick connector
3. Connect the torch gas hose to the A2 connector
4. Connect the torch control cable to connector J2
5. Connect the gas hose from the gas bottle to connector A1
6. Alternatively, connect the remote control connector to connector J1.



## Switching on the welding power supply

When the main switch is turned on, the following message appears on the D2 display

**300AC/DC**

**Fx.x**

x.x= sw version

The factory sets the parameters when first switched on or after a reset.

During subsequent power-ups, the parameters of the last stable welding before the power supply is switched off are set.

## Basic SETUP settings

1. Switch off the machine with the main switch. Press the S3 button and turn on the main switch at the same time. The message SET UP will appear on the D2 display.
2. Press the S3 button to navigate through the menu.
3. Use the E1 encoder to edit the values of the selected setting.
4. Use any button (except S3) to save the settings and exit the menu.

### 5. Tab. 1 - Setup settings

SETTING	MIN	DEFAULT	MAX	
SELECT LANGUAGE:				ITALIANO ENGLISH FRANÇAIS DEUTSCH ESPAÑOL DUTCH PORTUGUES SUOMI CESKY POLSKI DANSK
COOLER ACTIVATION	OFF	AUTO	ON	
START CURRENT	%	A	A	*1
FINAL CURRENT	%	A	A	*1
CURRENT HF	20 A	SYN	300 A	
HF TIME	0.5 s	2.0 s	3.0 s	
KIND OF PULSE	SLOW (*2)	SLOW	FAST (*3)	
PILOT ARC	OFF	OFF	ON	

1\* Parameter values can be changed in % or absolute values A

2\* This setting allows slow pulse mode

3\* This setting enables fast pulse mode

SETTING	VALUE	DESCRIPTION
Cooling unit	AUTO	The welding machine controls the cooling unit mode.
	ON	The cooling unit always runs when the machine is switched on.
	OFF	The cooling unit is always switched off.
Starting current	%	It can be displayed as a percentage of the main welding current or in amperes.
	A	
Ending current	%	It can be displayed as a percentage of the main welding current or in amperes.
	A	
HF proud	SYN	Determines the value of the HF ignition current. Either synergistic (automatic) setting or can be set in amps.
	20-220A	
Pulse current type	FAST	
	SLOW	
Pilot arc	ON	
	OFF	

### Error messages

LED L5 is illuminated when unsuitable working conditions occur. A message appears on display D2.





MESSAGE	MEANING	CHECK	STATUS
Overheating	The thermal fuse has tripped. Leave the machine switched on until the indicator light goes out and the machine switches on the functions by itself.	Only the fan is running. Other functions are disabled. If the cooling unit is switched on, it also runs.	The machine is overloaded. Check working conditions to ensure adequate ambient temperature.



Cooling Alarm	Insufficient fluid pressure in the cooling circuit.	Only the fan is running. Other functions are disabled.	Check the connection of the cooling unit to the welder, that the cooling unit is switched on by its main switch, that the tank is filled with coolant according to the instructions, that the cooling circuit is tight, and that there are no leaks anywhere.
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## 8. MMA WELDING


### MMA LEVEL 1 PARAMETERS

1. Use the S5  button to select the MMA  method.
2. Press the S3  button, and the first level of the MMA menu will open. The selected parameter and its value will be displayed on the D2 display.
3. The E1 encoder can be used to change parameters. Pressing any other button  other than S3 will save the changes and exit this menu.

### TABLE OF FIRST-LEVEL MMA PARAMETERS

PARAMETER	MIN	DEFAULT	MAX	NOTES
WELDING CURRENT	10A	80A	300 A	
HOT-START	0%	50%	100 %	Percentage of welding current
ARC-FORCE	0%	30%	100 %	Percentage of welding current

### MMA LEVEL 2 PARAMETERS

1. Press and hold the S3  button for 3 seconds to open the second level of the MMA menu.  
L.2=LEVEL.2=2nd MENU level will appear on the D1 display.  
The selected parameter and its value will be displayed on the

display D2.



- The S3  button is used to scroll through the menu (see table below), the E1 encoder is used to make setting changes and pressing any button other than S3 , saves the changes and exits this initialization menu.



TABLE OF SECOND-LEVEL MMA PARAMETERS

PARAMETER	MIN	DEFAULT	MAX	NOTES
VRD	OFF	OFF	ON	Only in MMA, (VRS = Voltage Reduction Device)
LONG ARC VOLTAGE	37	SYN	65	
REMOTE CONTROL	OFF	OFF	ON	MMA   DC TIG   AC TIG

SYN = the value is set automatically by the microprocessor based on the set value of the welding current. The value can be displayed but is not user-adjustable.


Only the handheld remote control can be used for remote control.

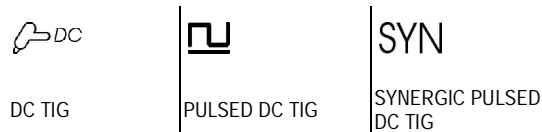
### MMA SPECIAL FUNCTIONS

- Press S1  to select the function. The selected parameter and its value will be displayed on the D2 display.
- You can change the parameters with the encoder E1, which are automatically saved.
- Pressing any button  other than S1 will exit this menu.

PARAMETER	MIN	DEFAULT	MAX	NOTES
DYNAMIC ARC	OFF	OFF	ON	

## 9. DC TIG WELDING



1. Use the  S5 button to select the TIG method.




2. Press the  S4 button to select



### DC TIG LEVEL 1 PARAMETERS

1. Press the S3  button, and the first level of the TIG menu will open. The selected parameter and its value will be displayed on the D2 display. You can change the parameters with the encoder E1.
2. Press any button  other than S3 to save the changes and exit this menu.

TIG DC FIRST PARAMETER TABLE




PARAMETER	MIN	DEFAULT	MAX	NOTES
WELDING CURRENT	5A	80A	300 A	
MAXIMUM WELDING CURRENT	5A	80A	300 A	
BILEVEL	10%	50%	200 %	ONLY IN BILEVEL MODE  , set as a percentage of the main welding current
BASE CURRENT	1%	40%	200 %	The value is expressed as a percentage of the main welding current
	SYN	SYN	SYN	The value is set automatically.
PEAK TIME	0.1s	5s	5s	Only works with the SLOW PULSE option.

	1%	50%	99%	Only works with the FAST PULSE option.
	SYN	SYN	SYN	Only works with the SYNERGIC TIG option.
BASE TIME	0.1s	5s	5s	Only works with the SLOW PULSE option.
	0.1Hz	100Hz	2.5	Only works with the FAST PULSE kHz option.
PULSE FREQUENCY	0.1Hz	5.0Hz	5.0	Only works with the SLOW PULSE Hz option.
	SYN	SYN	SYN	Only works with the SYNERGIC TIG option.
SLOPE DOWN	0.0s	0.0s	25.0s	
FINAL CURRENT	5%	5%	80%	The value can be set as a percentage of the main welding current or as a value in amperes.
	5A	5A	300A	
POST-GAS	0.0s	10.0s	25.0s	
PRE-GAS	0.0s	0.1s	10.0s	
STARTING CURRENT	2%	50%	200%	The value can be set as a percentage of the main welding current or as a value in amperes.
	5A	50A	300A	
SLOPE UP	0.0s	0.0s	25.0	

SYN = value is set automatically by the microprocessor based on the set

value of the welding current. The value can be displayed but is not user-adjustable.

## DC TIG LEVEL 2 PARAMETERS

1. Press and hold the S3  button for 3 seconds, and the second level of the TIG menu will open. The message L.2 appears on the D1 display.  
Press the S3  button again to select the parameter.
2. Parameters can be changed with the encoder E1 and are automatically saved.
3. Pressing any button  other than S3 will exit this menu

TIG DC SECOND PARAMETER TABLE

### PARAMETER MIN DEFAULT MAX NOTES

PARAMETER	MIN	DEFAULT	MAX	NOTES
TIG TIME	POINT 0.01 s	0.1s	10.0 s	Works only for the 2T points option
HF START	ON	ON	OFF	Functional for MMA, DC TIG, AC TIG
REMOTE CONTROL	OFF	OFF	ON	Supports handheld remote control, foot pedal, and torch control with UD buttons or potentiometer. If the torch control and foot pedal are connected, the pedal commands take precedence over the torch commands. The foot pedal can adjust the maximum and minimum TIG welding current. Working in 2T LIFT ARC, 2T HF, 2T BODY and 2T BODY HF is possible with the foot pedal. If the REMOTE CONTROL function is active, the welding is performed without SLOPE UP, SLOPE DOWN and all special functions.
MINIMUM PEDAL CURRENT	1%	50%	90%	Functional in length control mode and when a pedal is connected.

## DC TIG SPECIAL FUNCTIONS MENU




1. Press the S1 button  and select the desired special TIG function. The selected function and its parameter will appear on the D2 display.
2. Adjust the parameter using the E1 encoder. The value is automatically saved.
3. Press any button  other than S1 to exit this menu.

TABLE OF SPECIAL DC TIG FUNCTIONS

PARAMETER	MIN	DEFAULT	MAX	NOTES
DYNAMIC ARC	1 A	OFF	50A	
Q-START	0.1s	OFF	60.0s	
MULTI-TACK	0.5Hz	OFF	6.0 Hz	If any of these functions are active, welding is performed without start-up, run-up, start current, end current, dynamic arc and Q-start

If the remote control is switched on and the foot pedal is connected, the special functions are disabled.

## 10. AC TIG WELDING

1. Use the  S5 button to select the AC TIG method.



AC TIG



PULSED AC TIG

2. Press the  S4 button to select



2 STEP



2T SPOT




4 STEP



4 STEP BI-LEVEL

### AC TIG LEVEL 1 PARAMETERS

1. Press the S3  button, and the first level of the AC TIG menu will open. The selected parameter and its value will be displayed on the

D2 display.





2. You can change the parameters using the encoder E1.
3. Press any button  other than S3 to save the changes and exit this menu.

TABLE OF FIRST-LEVEL PARAMETERS OF PULSED TIG AC AND SYNERGY TIG AC				
PARAMETER	MIN	DEFAULT	MAX	NOTES
WELDING CURRENT	5A	80A	300A	
MAXIMUM WELDING CURRENT	5A	80A	300A	Functional in length control mode and when a pedal is connected.
BILEVEL	10%	50%	200%	ONLY IN 4 STEP BI-LEVEL MODE (4T B-LEVEL), set as a percentage of the main welding current.
BASE CURRENT	1%	40%	200%	The value is expressed as a percentage of the main welding current.
	SYN	SYN	SYN	The value is set automatically.
PEAK TIME	0.1s	5s	5s	Only works with the SLOW PULSE option.
	1%	50%	99%	Only works with the FAST PULSE option.
	SYN	SYN	SYN	Only works with the SYNERGIC TIG option.
BASE TIME	0.1s	5s	5s	Only works with the SLOW PULSE option.
	0.1Hz	100Hz	1.0kHz	Only works with the FAST PULSE option.
PULSE FREQUENCY	0.1Hz	5.0Hz	5.0Hz	Only works with the SLOW PULSE option.
	SYN	SYN	SYN	Only works with the SYNERGIC TIG option.
SLOPE DOWN	0.0s	0.0s	25.0s	
ENDING CURRENT	5%	5%	80%	The value can be set as a percentage of the main welding current or as a value in amperes.
	5A	5A	300A	
POST-GAS	0.0s	10.0s	25.0s	
PRE-GAS	0.0s	0.1s	10.0s	Only works with "HF ARC START" = ON
STARTING CURRENT	2%	50%	200%	The value can be set as a percentage of the main welding current or as a value in amperes.
	5A	40A	300A	
SLOPE UP	0.0s	0.0s	25.0s	



SYN = the value is set automatically by the microprocessor based on the set value of the welding current. The value can be displayed but is not user-adjustable.










## AC TIG LEVEL 2 PARAMETERS

1. Press and hold the S3  button for 3 seconds, and the second level of the TIG menu will open. The message L.2 appears on the D1 display.
2. Press the S3  button again to select the parameter.
3. Parameters can be changed with the encoder E1 and are automatically saved.
4. Pressing any button  other than S3 will exit this menu.

TABULKA PARAMETRŮ DRUHÉ ÚROVNĚ AC TIG MENU

PARAMETER	MIN	DEFAULT	MAX	NOTES
TIG SPOT TIME	0.01s	0.1s	10.0s	Works only for the 2T points option
REMOTE CONTROL	OFF	OFF	ON	Functional for MMA, TIG DC and TIG AC. Supports manual remote control, foot pedal, torch UP/DOWN buttons or potentiometer control. If the torch control and foot pedal are connected, the foot pedal commands take precedence over the torch commands. The foot pedal can set the maximum and minimum TIG welding current. Working in 2T LIFT ARC, 2T HF is possible with the foot pedal. When the REMOTE CONTROL function is active, welding is carried out without SLOPE UP, SLOPE DOWN and all special functions.
MINIMUM PEDAL CURRENT	1%	5%	90%	Functional in length control mode and when a pedal is connected.

HF START    ARC ON    ON    OFF

Value	DC+	AC pulse shape	DC-
1	Sine		Sine
2	Square		Square
3	Triangular		Triangular
4	Sine		Square
5	Square		Sine
6	Sine		Triangular
7	Triangular		Sine
8	Square		Triangular
9	Triangular		Square

AC pulse shape    1    1    9

## AC TIG SPECIAL FUNCTIONS MENU



1. Press the S1  button and select the desired special TIG function. The selected function and its parameter will appear on display D2.
2. Use encoder E1 to adjust the parameter. The value is automatically saved.
3. Press any button  other than S1 to exit this menu.

TABLE OF SPECIAL AC TIG FUNCTIONS

PARAMETER	MIN	DEFAULT	MAX	NOTES
AC WAVE IN AC-DC MIX MODE	10%	OFF	80%	
EXTRA FUSION	1%	OFF	80%	
AC FREQUENCY	20Hz	65Hz	200Hz	
AC BALANCE	-10	0	10	

## 11. 2-STROKE (2T) AND 4-STROKE (4T) MODES

They work only in TIG mode and are button modes of the TIG torch:

- The first stroke (1T) means to press and hold the torch button,
- The second stroke (2T) means to release the torch button,
- The third stroke (3T) means to press and hold the torch button,
- The fourth stroke (4T) means to release the torch button.

The S4 button on the control panel selects them.

### 2T LIFT-ARC

1. Touch the electrode to the welding torch.
2. Press and hold the torch button (1T). Slowly move the electrode slightly away from the weldment. The arc will ignite, and the welding process will start.
3. Release the torch button (2T), and the welding process starts the final stage (according to the set parameters).

### 2T HF

1. Bring the torch approximately 2 - 3 mm closer to the weldment.
2. Press and hold the torch button (1T).
3. Release the torch button (2T), and the welding process starts the final stage (according to the set parameters).

### 4T LIFT-ARC

1. Touch the electrode to the welding torch.
2. Press the torch button (1T) and release it (2T). Slowly move the electrode away from the weldment, the arc ignites, and the welding begins.
3. Press the torch button and keep it pressed (3T). The welding current will eventually go down to the end current.
4. Release the torch button (4T), and the welding process starts the final stage (according to the set parameters).

### 4T HF

1. Bring the torch approximately 2 - 3 mm closer to the weldment.
2. Press the torch button (1T) and release it (2T).
3. Press the torch button and keep it pressed (3T), and the welding process will start the final stage (according to the set time parameters and end current).
4. Release the button (4T), and the arc will extinguish, followed by a POST-GAS, and the process will stop.

#### **4T BI-LEVEL LIFT**

1. Touch the electrode to the welding torch.
2. Press the torch button (1T) and release it (2T). Slowly move the electrode away from the weldment, the arc starts, and the welding begins.
3. Press and quickly release the torch button, and the second welding current is switched. If you press the button for over 0.3 seconds, the welding process will start in the final stage. Each press and release of the torch button for less than 0.3 seconds will cause the current to change to either the main or the BILEVEL current.
4. Press the torch button and keep it pressed (3T), and the welding process will start the final phase (according to the set parameters of elapsed time and final current).
5. Release the button (4T), and the arc will extinguish, followed by the POST-GAS, and the process will stop.

#### **4T BILEVEL HF**

1. Bring the torch approximately 2 - 3 mm closer to the weldment.
2. Press the torch button (1T) and release it (2T).
3. If you press the torch button for less than 0.3 seconds (press and release), the current will jump to the second set of BILEVEL welding current. Each press and release of the torch button for less than 0.3 seconds will cause the current to change to either the main current or the BILEVEL current.
4. Press the torch button and keep it pressed (3T), and the welding process will start the final phase (according to the set parameters of elapsed time and final current).
5. Release the button (4T), and the arc will extinguish, followed by the recharge, and the process will stop.

#### **2T SPOT**

1. Touch the electrode to the welding torch.
2. Press and hold the torch button (1T) and slowly move the electrode away from the weldment. The arc will jump, and the welding process will start.
3. Release the button (2T), and the welding process continues according to the set parameters and for the set point time.

#### **2T HF SPOT**

1. Bring the torch approximately 2 - 3 mm closer to the weldment.
2. Press the torch button (1T), and the discharge ignites the arc.

3. Release the torch button (2T). The welding arc will burn for the set time and automatically extinguish, followed by the current blowing.

### Procedure with holding down the torch button

1. Bring the torch approximately 2 - 3 mm closer to the weldment.
2. Press the torch button (1T), and the discharge ignites the arc.
3. The welding arc will burn for the set time and automatically extinguish, followed by a current surge.
4. Touch the electrode to the weldment and slowly move it away. The arc will be ignited.






### PILOT ARC

1. This function can be activated with all 4T modes.
2. During LIFT-ARC welding, the arc of the set value (in the pilot arc option) is started after pressing the torch button (1T) and moving the torch away from the welding table. The pilot arc lasts until the torch button is released (2T). After the button is released, the current surge, etc., starts.
3. When welding with HF start, the situation is analogous to LIFT-ARC, except that the electrode does not touch the weldment at the start.





## 12. JOB MANAGEMENT

By JOBS, we mean the user-saved settings of the welding machine parameters. 50 JOBS can be stored.






### SAVING JOB

1. It only works if it is not welding.
2. Press and hold the S2  button for 3 seconds. The text SELECTING JOB will appear on the D2 display.
3. Pressing the S2 button again brings up the text ULOZ JOB c. XX (XX is the number of the lowest available position in memory).
4. If the text JOB PAMET PLNA appears on the D2 display, you can use the encoder to select the occupied JOB position (flashing). If you confirm by pressing S2 , the original JOB will be replaced by the new one.
5. If you do not wish to save the new JOB, press any button  other than the S2  button to exit the JOB menu.
6. To save the JOB, press the S2  button.

## LOADING JOB

1. It only works if it is not welded.
  2. Press and release the S2 . The text VYBER JOB C. XX (XX is the number of the lowest available position in memory) will appear on the D2 display. (If no JOB is stored in memory, ZADNY ULOZENY JOB will appear on the D2 display.)
  3. Use the encoder to select the desired JOB.
  4. If you do not wish to recall a JOB, press any button  other than S2  to exit the JOB menu.
  5. If you wish to recall a JOB, press the S2 , this action will close the JOB menu. The display will show JOB CLOSED C. XX.
- Note: If JOB is selected and the welder is equipped with a torch with UP-DOWN buttons (UD), JOBS can be selected using UD.

## DELETING JOB





1. It only works if it's not welded.
2. Press and hold the S2  button for 3 seconds. The text VYBER JOBU will appear on the D2 display.
3. Use the encoder to select the text MAZANI JOBU in the D2 display.
4. Press S2 , and the text SMAZ JOB C. XX appears.
5. Use the encoder to select the JOB you want to delete.
6. If you do not wish to delete the JOB, press any button  other than S2  to exit the JOB menu.
7. If you wish to delete a JOB, press the S2  button. The JOB will be deleted, and you will automatically exit the JOB menu.

## 13. RESET

A reset can be helpful if too many changes have been made that are not useful, and the operator feels it is a good idea to return to the factory settings. The second reason may be problems with system "freezes", which a reset can resolve. One of two resets can be chosen.

**Partial reset** - all parameters will be reset to factory settings outside the SETUP menu settings and saved JOBS.

**Full reset** - all parameters will be reset to factory settings, JOBS will be deleted, and language will be set to English.

1. Switch off the welder with the main switch.
2. Press the S3  and S5  (welding method selection) simultaneously and keep them pressed while switching on the welder with the main switch.
3. On display, D2 will appear RECALL PARTIAL SETUP?
4. If you press button S3 , a partial reset is activated. If you turn the encoder, the text SELECT TOTAL RESET appears on D2. If you confirm by pressing the S3  button, a total reset is performed, and the message MEMORY RESETTING NOW appears on D2.
5. You can exit the menu beforehand by pressing any other than the S3 button. In this case, the reset will not be performed.

## 14. MAINTENANCE AND SERVICE TESTS

The equipment requires minimal care and maintenance under normal working conditions. Certain principles must be observed to guarantee faultless operation and long service life:

1. The machine may only be opened by our service personnel or a trained electrician
2. Occasionally, it is needed to check the condition of the power plug, power cable and welding cables
3. Once or twice a year, blow out the entire equipment with pressurized air, especially the aluminium cooling profiles. Beware of the risk of damage to electronic components by direct compressed air from a short distance!

### CHECKING THE OPERATIONAL SAFETY OF THE SOURCE ACCORDING TO EN 60 974-4

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

## 15. SERVICE

### PROVISION OF A GUARANTEE

1. The guarantee includes the responsibility for the fact that the delivered machine has, at the time of delivery and for the duration of the guarantee, the characteristics specified in the binding technical conditions and standards.
2. Liability for defects that occur in the machine after its sale within the warranty period consists of the obligation to remedy the defect free of

charge by the manufacturer or by a service organization authorized by the manufacturer.

3. The warranty period is 24 months from the sale of the machine to the buyer. The warranty period begins on the machine's handover date to the buyer or the possible delivery date. The warranty period does not include when a legitimate claim is made until the machine is repaired.
4. It is a condition of the validity of the warranty that the welding machine is used in the manner and for the purposes for which it is intended. Damage 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 purposes for which it is not intended, overloading of the machine, even if temporary. Only the original manufacturer's parts must be used when maintaining the machine.
5. Any modifications or changes to the machine that may affect the functionality of the individual machine components are not permitted during the warranty period.
6. Warranty claims must be made immediately after a manufacturing defect or material defect has been detected and must be filed with the manufacturer or 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 against overvoltage. It is destroyed in the event of prolonged overvoltage or large voltage surges. The warranty does not cover this failure.
9. The proof of purchase (invoice) showing 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 carried out by the manufacturer or its authorized service organizations.
2. A similar procedure is followed in case of post-warranty repairs.
3. Notify the complaint by e-mail: [servis@alfain.eu](mailto:servis@alfain.eu) or by phone: [+420 563 034 626](tel:+420563034626).

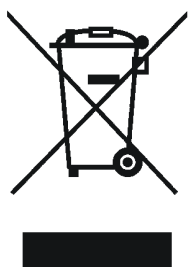


## 16. DISPOSAL OF ELECTRICAL WASTE

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

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

The company ALFA IN a.s. is registered in the LIST of the collective system EKOLAMP s.r.o. (under the producer registration number 06453/19-ECZ).



This symbol on products or accompanying documents means that used electrical and electronic products must not be added to regular municipal waste.

The equipment must be disposed of at the company's separate collection and take-back points. EKOLAMP s.r.o. The list of locations can be found at <http://www.ekolamp.cz/cz/mapa-sbernych-mist>.

#### For users in European Union countries:

Ask your dealer or supplier for the necessary information to dispose of electrical and electronic equipment.

## 17. WARRANTY

The warranty certificate is the proof of purchase (invoice) with the product's serial number or the warranty certificate below filled in by the authorized dealer.

Serial number:	
Day, month in words and year of sale:	
Stamp and signature of the seller:	