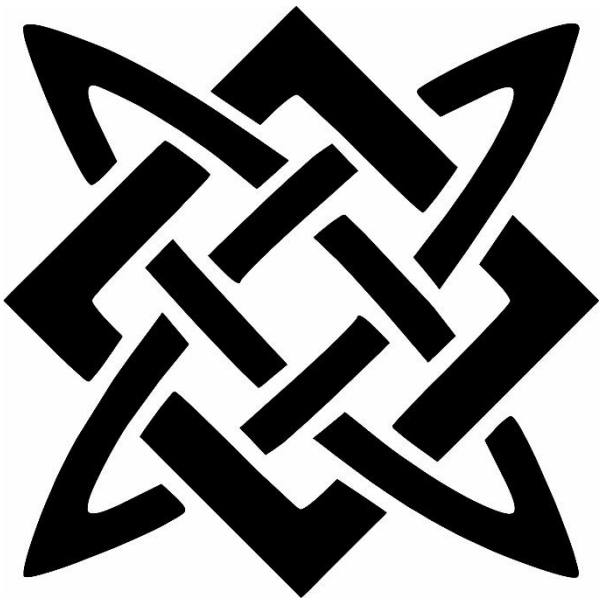
WELDING MACHINE

SVAROG 330 HD H2O HSL

OPERATING MANUAL



CONTENT

1. INTRODUCTION

Dear consumer,
Company ALFA IN a.s. thank you for buying our product; we believe you will be satisfied with our machine.
Welding machines may be operated only by trained persons and only in the technical provisions. Company ALFA IN a.s. accept no responsibility for damage caused by improper use. Before commissioning, please read this manual carefully.
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.

S The machines can be used for welding in areas with an increased risk of electric shock. The machines comply with the requirements corresponding to the CE mark.

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 paper or electronic operating instructions.

SAFETY PRECAUTIONS

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 footwear. Open shoes are not suitable as droplets 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. ☝Notice☝
   Persons with implanted pacemakers must not work with the machine or move in their immediate vicinity! There is a risk of the stimulator malfunctioning!
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. Stop welding immediately if the power cord is damaged. Do not touch this cable. Unplug it.
10. It is important to note that only machines marked with S a symbol should be used in areas with a higher risk of electric shock.
11. 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 authorisation.

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 CO2 bottle of mixed gases must be handled following the regulations for working with pressure vessels.
3. The welder must use protective equipment.
4. Hitch the machine on all crane eyes when handling the machine with a lifting device. Another mounting is not permitted!
5. Disconnect the device from the mains before working on the electrical system, removing or cleaning the cover.

MACHINE PROTECTION

This machine is electronically protected against overload. Do not turn off the main power switch while the machine is loaded.

ACL ECO coolant is designed for ambient temperatures up to -10˚C.

NOISE EMISSIONS

The noise emission level is less than 70dB(A) measured on a standard load according to EN 60 974 at the maximum operating point.

2. OPERATING CONDITIONS

1. SVAROG 330 PULSE welding machine is designed for welding aluminium steels and their alloys for commercial and industrial use.
2. Use only the specified transport equipment to transport the welder. Do not use a forklift or simple crates to move.
3. The welding machine can be manipulated with the help of crane eyes, which are part of the chassis. The machine can only be handled if attached to all crane eyes. The SVAROG transport with crane eyes is prohibited if a gas cylinder is placed on the platform.

4. 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.
5. The device complies with IEC 61000-3-12.
6. 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˚.
7. Operating ambient temperature between -10 to +40 °C.
8. Relative humidity below 90% at +20 °C.
9. Altitudes of up to 3000 meters above sea level.
10. 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).
11. The handling handle is intended for travel only and is not designed for lifting machines.
12. All interventions in the el. Equipment and repairs (disassembly of the mains plug, replacement of fuses) may only be carried out by an authorised person.
13. 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 authorised employee performs the inspection. – See paragraph Maintenance and service tests.
14. From the point of view of interference suppression, the welding machine is designed primarily for industrial premises. Special measures may be required if other premises are used (see EN 60974-10).
15. The machine must be protected against the following:
    a. Moisture and rain
    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 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.

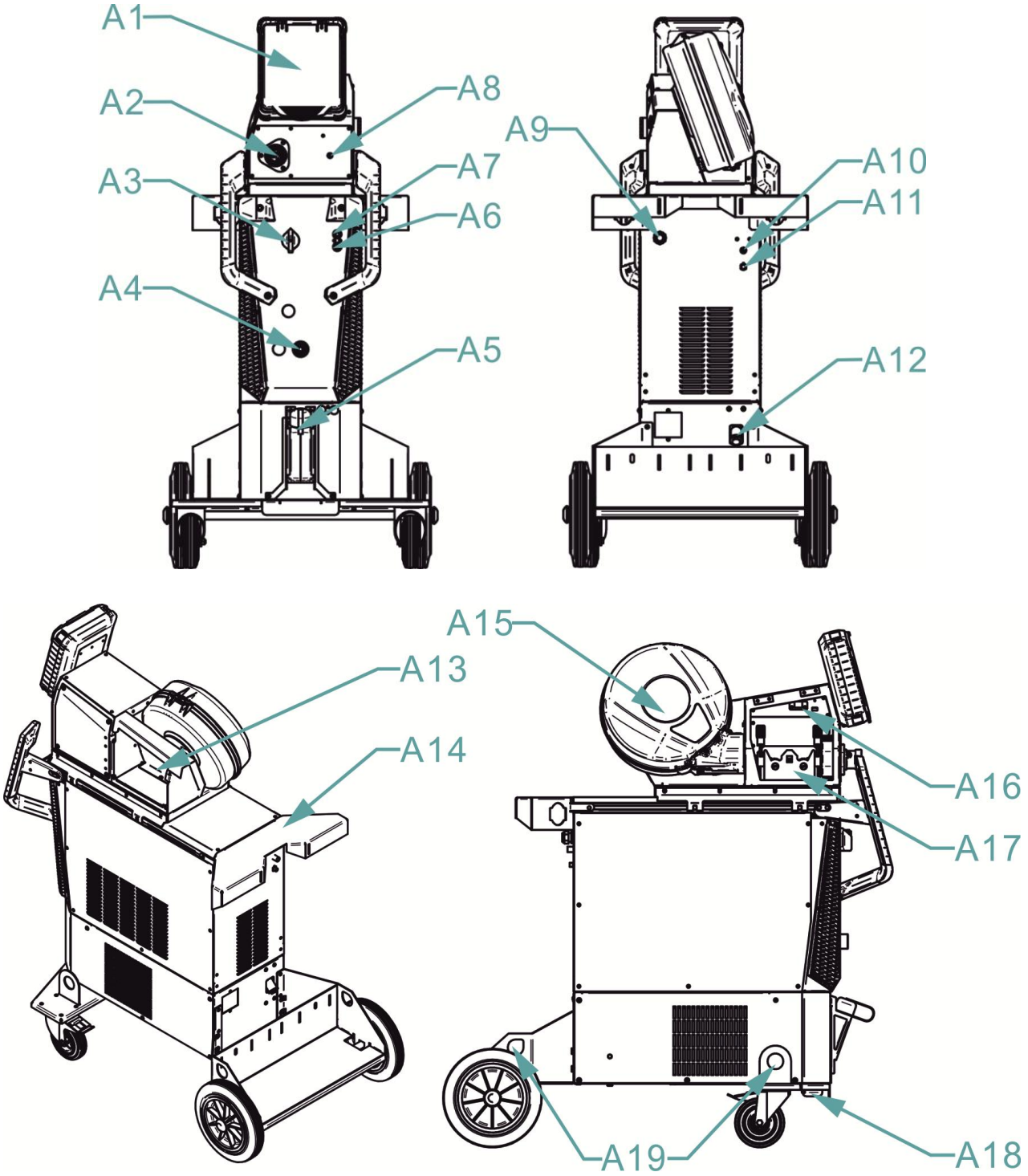
✋ Notice✋

Due to the installed capacity's size, the distribution plants' approval must be required to connect the equipment to the public distribution network. We warn the user that he is responsible for any interference from welding.

3. TECHNICAL DATA

SVAROG 330 HD PULSE		
Method		MIG/MAG
Mains voltage	V/Hz	3x400/50-60
Welding current range	A	20/15,0 - 320/30,0
Open-circuit voltage U_{20}	V	71,0
Mains protection	A	16 @
Max. effective current I_{1eff}	A	14,2
Welding current (DC=100%) I_2	A	230
Welding current (DC=60%) I_2	A	280
Welding current (DC=x%) I_2	A	45% = 320
Protection		IP 23S
Standards		EN IEC 60974-1, EN 60974-10 cl. A
Dimensions (w x l x h) generator	mm	650 x 1140 x 1270
Compact weight	kg	115
Wire-speed	m/min	1,0 - 24,0
Spool diameter	mm	300
Spool weight	kg	18
Cooling power (Q=1l/min)	kW	0,74
Total liquid content	l	5,0
Max. pressure	Bar	3,5
Max. flow	l/min	9
Max. input power I_{1max}	A	22,4
Reduced Open-circuit voltage U_{2R}	V	11,0
Insulation class		H
Efficiency	%	86
Input power in idle mode P_{10}	W	26
Max. input power S_{1max}	kVA	14,6
Ambient temperature	°C	-10 ÷ +40

4. MAIN MACHINE PARTS



Pos.	Name
A1	Control panel
A2	Euro torch connector
A3	ON/OFF switch
A4	Quick connector (-)
A5	Cooling unit
A6	Quick connector H2O

A7	Quick connector H2O
A8	Connector for MIG torch connection
A9	Mains cable
A10	Gas connection connector
A11	Thermal fuse (5A)
A12	Coolant filter
A13	Storage space
A14	Bottle holder
A15	Wire spool holder
A16	Feed lighting
A17	Wire feed
A18	Coolant outlet
A19	Crane's eyes

5. MACHINE ACCESSORIES

PART OF DELIVERY

1. Pulley (s) for wire diameters 1,0 - 1,2 mm
2. Operating manual
3. Reduction for wire spool 5 kg a 15 kg
4. Grounding cable 3 m with clamp
5. Hose for gas connection

* The standard delivery does not include A bypass connection for the cooling unit.

ACCESSORIES TO ORDER

See Catalog

TORCHS TO ORDER

M6W-4M	Torch ARC M6W 4m
M6OSW-4M	Torch ARC M6OSW 4m
M6W-DM3-4MPA	Torch ARC M6W 4m DIGIMIG PA
M6OSW-DM3-4MPA	Torch ARC M6OSW 4m DIGIMIG PA
M22-4M**	Torch ARC M22 4m 250/220/145A

* listed torches are 4m in length. Also, 3 and 5m lengths can be ordered.
** For this torch, we recommend ordering the water cooling connection (VM0082)

6. PROCEDURE BEFORE SWITCHING ON THE MACHINE

CONNECTION OF THE TORCH

Connect the torch connector to the EURO connector **A2** on the sliding unit. After that, connect the torch liquid quick couplers according to the colour of the liquid quick couplers **A6** and **A7** on the machine.

CONNECTION OF THE GROUNDING CABLE

Connect the quick disconnect of the ground cable to the minus quick disconnect of **A4**, carefully forcefully secure by turning clockwise. Attach the earth clamp to the weldment.

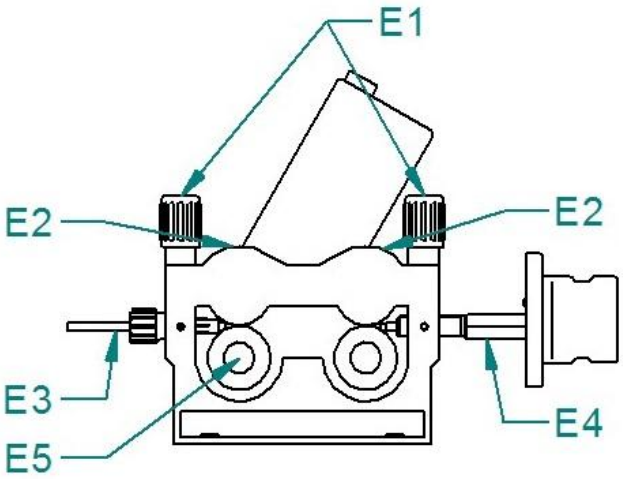
CONNECTION OF GROUNDING CLAMP

1. Fix the grounding clamp close to the welding point. Care must be taken to ensure the clamp's connection to the weldment is as firm as possible.
2. Do not place the clamp on the welding machine or the welding bottle!
3. Attach the clamp firmly to the welding machine or welding table.

CONNECTION TO THE POWER GRID

Insert the mains plug into the appropriate mains socket. The circuit breakers must correspond to the technical data of the machine.

WIRE FEED MECHANISM



Pos.	Description
E1	Pressure arm nut
E2	Pressure arm
E3	Guiding Bowden
E4	EURO connector
E5	Roll

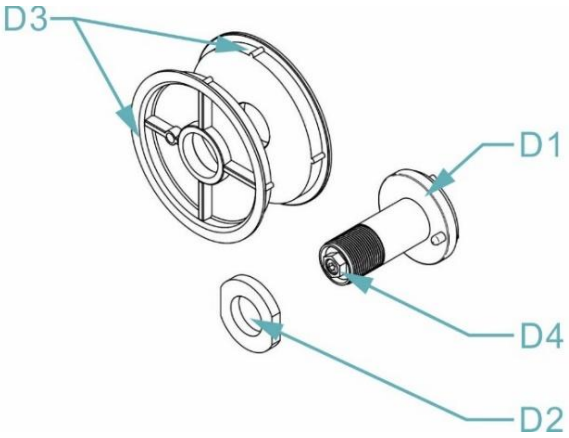
GUIDING THE WIRE INTO THE FEED

1. Open the coil cover and release the lock **D2** on the coil holder **D1**. Insert the wire coil reducer **D3** and the wire coil on top, secure with lock **D2**. Before doing so, ensure the pin is inserted into the appropriate hole in the wire spool or wire spool reducer.
2. It is possible to adjust the braking force with screw **D4** so that the wire does not unwind from the spool after the wire feed has stopped.
3. Cut the end of the wire attached to the edge of the coil and feed it into the Bowden **E3** through the pulleys **E5** and about 5 cm inside the EURO

connector tube **E4**. Check that the wire runs through the correct groove of the pulley.

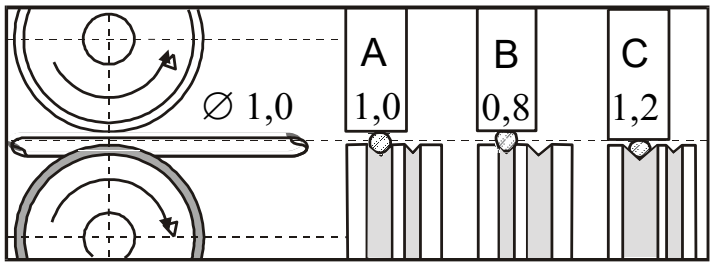
4. Fold down the pressure arms **E2** and return the clamping nuts **E1** to the vertical position.
5. Adjust the pressure of the clamping nut to ensure smooth movement without deforming the wire. Press button **A13**, located in the feed area of the machine, to start the feed motor. The adjustment screw is located under the plastic screw **E1**.
6. The manufacturer sets the coil brake. If necessary, it can be adjusted with screw D4 so that when the feed stops, the coil stops in time, and the wire is not too loose. However, an over-tightened brake puts unnecessary stress on the feeding mechanism and can cause the wire to slip in the pulleys.

Pos.	Description
D1	Coil holder
D2	Lock
D3	Wire coil reduction
D4	Screw - adjusting braking force



OVERVIEW OF WIRE FEED PULLEYS

All ALFA IN MIG/MAG machines use double-groove pulleys. These grooves are designed for two wire diameters (e.g. 0.8 and 1.0 mm).
The wire feed pulleys must be suitable for the diameter and material of the welding wire. Only in this way can a smooth wire feed be achieved.
Irregularities in wire feed lead to poor welding quality and wire deformation.



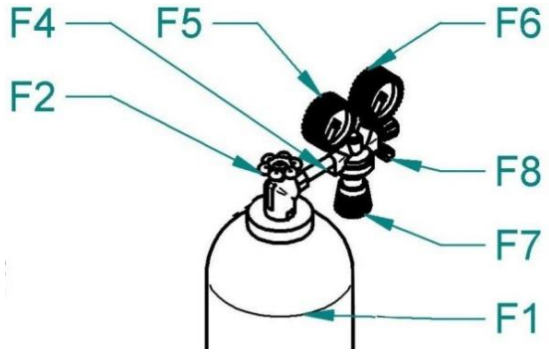
A	Correct
B	Wrong
C	Wrong

ADJUSTING GAS FLOW

The electric arc and the melt bath must be perfectly protected by gas. Too little gas cannot create the necessary protective atmosphere; however, too much gas entrains air into the electric arc.

☝**Notice**☝ The gas bottle must be well secured against falling. This manual does not address the safe securing of the gas bottle. Information can be obtained from the supplier of industrial gases.

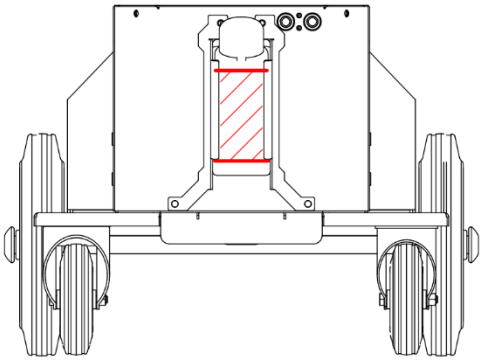
1. Attach the gas hose to the outlet on the machine's rear panel.
2. Press the **P27** button on the main panel to switch on the gas valve. If the button is pressed for less than 3 seconds, the gas valve turns off when the button is released. If the button pressing time is longer than 3 s, the gas valve is switched off after about 20 seconds or after pressing any button.
3. Turn the adjusting screw **F7** on the bottom of the pressure-reducing valve until the flow meter **F6** shows the desired flow, then release the button. The optimum flow rate is 10-15l/min.
4. After a prolonged machine shutdown or torch change, it is advisable to purge the pipe with shielding gas before welding.



Pos.	Description
F1	Gas bottle
F2	Bottle valve
F4	Pressure reducer
F5	High-pressure manometer
F6	Low-pressure manometer
F7	Adjusting screw
F8	Gas valve

COOLING SYSTEM OF WATER TORCH

1. The cooling unit is located at the bottom of the machine.
2. The pump seal in this ALFA IN welder is specially designed for ACL ECO fluid (pink, order no. 4600, 5 l canister.
   Operating range - ambient temperature -10 °C to +40 °C).
3. Leakage of the cooling circuit may occur if other fluid is used.
   A failure of the cooling circuit using a fluid other than ACL ECO cannot be covered under the manufacturer's warranty.
4. We recommend a complete fluid change every one to three years. The fluid must not be mixed with any other type of fluid. For the procedure for changing the fluid, please refer to the Replacement of cooling liquid.



5. Keep the coolant level in the coolant reservoir within the permitted range (see illustration). The fluid level is visually visible on the front of the reservoir. Use the fluid prescribed by the manufacturer.
6. If the error message "**Err 2**" - Low fluid pressure illuminates during operation, turn off the main switch and check the coolant level. Test the cooling unit after switching on the machine. If the error recurs, the cause of the fault must be determined.
   NOTE: The seal at the red cap must be replaced every time the fluid is changed. The gasket can be ordered as an accessory (4712F).
7. ACL ECO liquid is not poisonous. Please note that the fluid replaced in the pump should be treated as hazardous waste. Do not pollute the environment. In the worst case, please take it to a salvage yard in its original canister. The safety data sheet can be found at

   https://www.alfain.eu/z36182-kapalina-chladici-acl-eco-5l

8. Note: When connecting a gas-cooled torch, securing the quick water couplings with the liquid circuit connection hose is necessary! Failure to do so may result in damage to the pump.

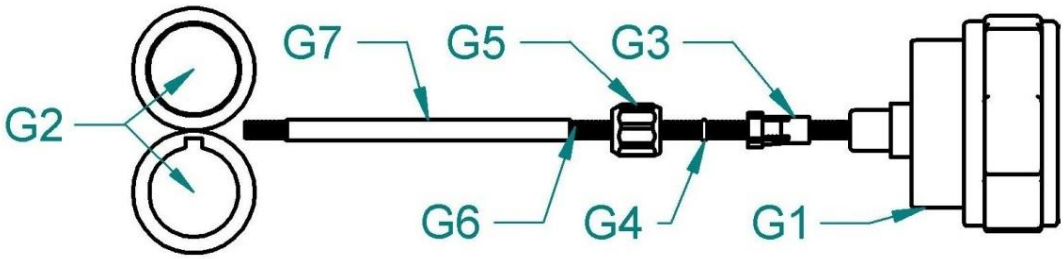
AIR BLEEDING TORCH COOLING SYSTEM

1. After filling the empty cooling system of the torch or replenishing the fluid after a substantial leak and aeration, it is necessary to perform a complete air bleeding of the circuit.
2. Remove the coolant reservoir cap and connect the quick water couplers with the fluid circuit jumper hose.
3. Run the cooling test for about 30 seconds.
4. Connect the torch and start the cooling test for about 30 seconds.
5. If the error message for **Low water pressure** lights up after pressing the torch button, the procedure must be repeated.

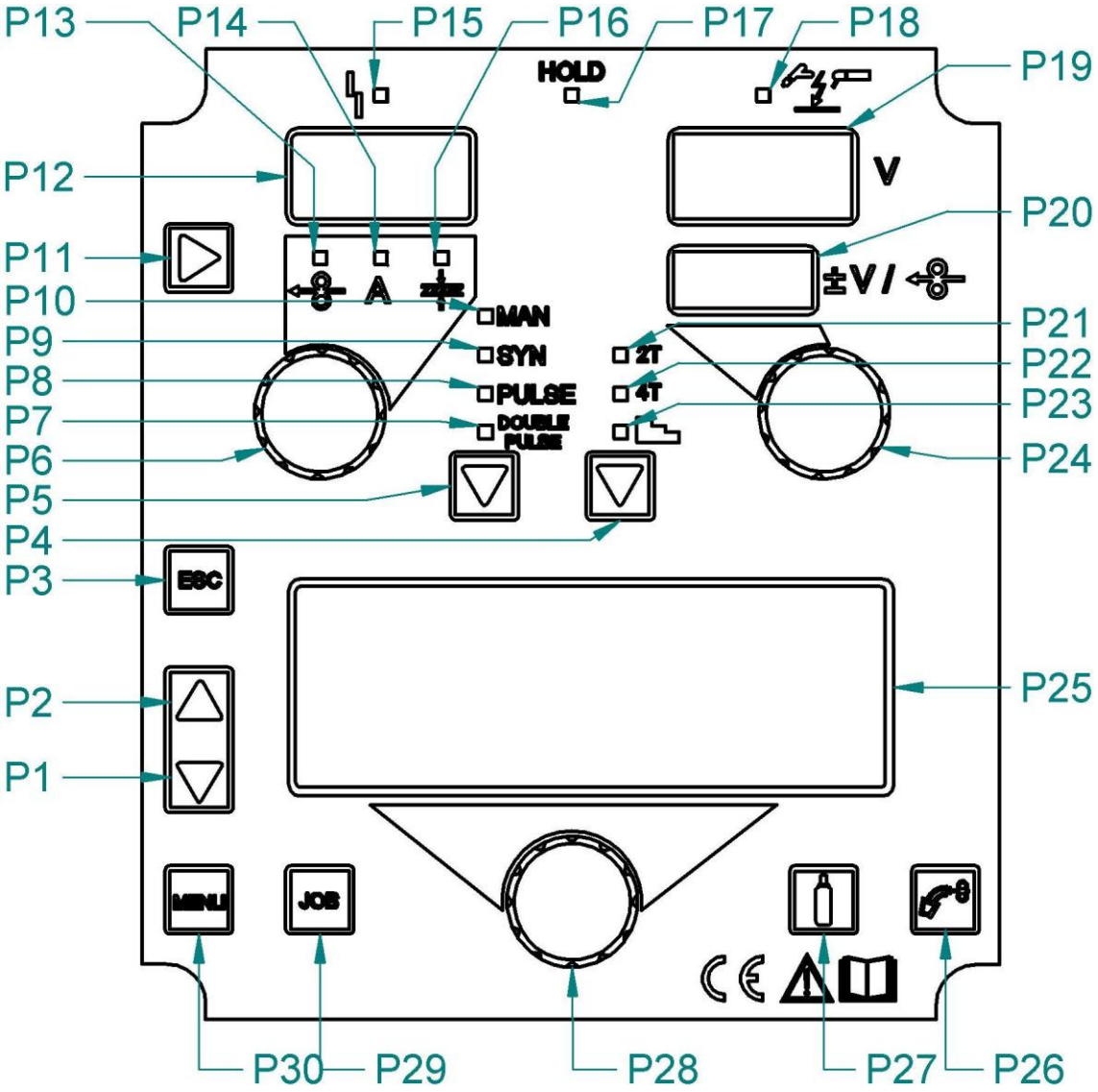
MACHINE MODIFICATION FOR ALUMINIUM WELDING

1. Replace the **G2** pulleys with pulleys for AL welding with a U groove profile.
2. Loosen the nut **G5** on the euro connector.
3. Replace the steel torch with an aluminium torch, or at least replace the torch bowden with a Teflon bowden.
4. Remove the capillary from the EURO G1 connector.
5. Cut the end of the Teflon bowden to close to the **G2** feed pulley. Thread clamp **G3**, o-ring **G4**, and nut **G5** onto the end of Teflon bowden brass tube **G7** for stabilisation. Tighten nut **G5**.

6. Place the torch on the EURO connector G1 and insert the wire into it.



7. MIG/MAG CONTROL PANEL



Pos.	Description
P1	BUTTON DOWN. Allows you to move down or left in the **P25** text display menu.
P2	THE UP BUTTON. Allows you to move up or right in the **P25** text display menu.
P3	BUTTON esc. Allows you to return to the main page of the P25 text

	display from any menu level.
P4	SELECTION BUTTON **2T, 4T, .**
P5	Select between MAN, SYN, PULSE, and DOUBLE PULSE.
P6	ENCODER OF MAIN WELDING PARAMETERS. The set parameters are displayed on the **P12** display.
P7	LED MIG/MAG SYNERGY DOUBLE PULSE - displays the method selection: synergy, double pulse.
P8	LED MIG/MAG SYNERGY PULSE - displays the method selection. Synergy, pulse.
P9	LED MIG/MAG SYNERGY- displays the method selection: synergy, non-pulsing.
P10	LED MIG/MAG MANUAL - displays the method selection: Manual setting.
P11	BUTTON FOR WELDING PARAMETERS Not active at MAN. During SYN, PULSE, and DOUBLE PULSE, it selects between , A and .
P12	Display of main welding parameters: Displays the measured and corresponding values if any LEDs , A, , are lit.
P13	FEED SPEED LED - The feed speed can be set on the P12 display if selected.
P14	WELDING CURRENT LED A– If selected, it is possible to set the welding current (only in SYN mode) and measure the current (HOLD FUNCTION) on display **P12**.
P15	LED ALARM - if it is on, the machine is overheated, or there is a fault on the machine. The fault message is on the **P19** display.
P16	MATERIAL THICKNESS LED (mm) - The material thickness can be set on the P12 display if selected.
P17	LED HOLD - The last measured values are displayed on displays **P12** and **P19**. The values disappear when a new welding starts or the settings change.
P18	LED output current. If it is lit, there is current at the outputs.
P19	Voltage display. Displays: Adjusted voltage Measured voltage during or after welding
P20	Correction display
P21	LED 2T – Two-stroke
P22	LED 4T – Four-stroke
P23	LED SCHODY – If selected, the three current modes chosen by the torch button are activated.
P24	Encoder correction

	Arc correction display: When MAN is not active, displays --- For SYN, PULSE, and DOUBLE PULSE displays the voltage or wire feed correction values performed by the E2 encoder. Values of 0.0 V represent factory settings.
P25	The TEXT DISPLAY shows the parameters.
P26	WIRE INSERTION BUTTON - pressing it starts the wire feed. At 3 s speed, 2 m/min, then 15 m/min
P27	GAS TEST BUTTON. - Pressing it opens the gas valve, and the gas flow can be adjusted on the bottle. Squeezing again closes the valve in the machine.
P28	ENCODER FOR TEXT DISPLAY Rotating the encoder changes the parameters displayed on the P25 text display. The selected parameters are marked →
P29	BUTTON JOB selects JOB mode.
P30	BUTTON MENU. It enters different menu levels. To return to the main page of the **P25** text display, press the ESC button.

8. MENU STRUCTURE

The menu is divided into three levels. The first level appears whenever the machine is switched on. The second level appears on display after pressing **P30** MENU. The third level is called up by holding down the **P30** MENU button longer than 5 seconds. Press the P3 button ESC the changed parameters are saved, and the **P25** text display is switched to the first menu level.

Movement between menu lines is done with the **P1** and **P2** buttons. Character → points to the parameter currently changed when the encoder **P28** is rotated.

MENU 1

In MENU 1, you can change/set values using encoder **P28** for:

1. Material
2. Wire diameter
3. Gas type

MENU 1 always appears after the initial screens when the machine is switched on with the main switch on the **P25** text display. If MENU 1 is not displayed on the **P25** text display, press the **P3** ESC button to show it.

P	U	L	S	E												S	Y	N
M	A	T	→	S	G	2	/	S	G	3					Ø	:	1	.	2
G	A	S	:	8	0	%	A	r	/	2	0	%	C	O	2				
J	O	B	:	F	E	5	5		F	R	A	N	T	A					

The table above is an example of the settings on the P25 display. The sign →

indicates the parameter currently changed when the encoder **P28** is rotated. The display shows that the machine is in pulse mode, welding with SG2/SG3 wire with a diameter of 1.2 mm under the protection of mixed gas 80% Ar + 20% CO2. The last line informs that it is a stored JOB named FE55 FRANTA.

MENU 2

MENU 2 is called up by pressing the **P30** MENU button. Parameters can be changed using the **P28** encoder. Movement within the menu uses the **P1** and **P2** side buttons next to the **P25** text display. Exit MENU 2 by pressing the **P3** ESC button. All changed parameters are saved.

The structure of MENU 2 for selecting MAN, SYN and PULSE is identical.

Order	2T, 4T	4T stairs (3 currents)
1	Inductance	Inductance
2	Pre Gas	Pre Gas
3	Soft Start	Soft Start
4	Burn back	Start 3 level
5	Post gas	Start Time
6	Spot Time	Ramp 3 Level 0
7		Ramp 3 Level 1
8		Ramp 3 Level 2
9		Crater 3 Level
10		Crater Time
11		Burn back
12		Post gas
13		Spot Time

Structure of MENU 2 for DOUBLE PULSE

Order	2T, 4T	4T stairs (3 currents)
1	Adjusting arc	Adjusting arc
2	Pre Gas	Pre Gas
3	Soft Start	Soft Start
4	Burn back	Start 3 Level (starting current)
5	Post gas	Start Time
6	Spot Time	Ramp 3 Level 1
7	Frequency of Double Pulse	Ramp 3 Level 2
8	Range of Double Pulse	Crater 3 Level
9	The cycle of Double Pulse	Crater Time
10	Oblouk double pulse	Burn back
11		Post gas
12		Spot Time
13		Frequency of Double Pulse
14		Range of Double Pulse
15		The cycle of Double Pulse
16		Arc double pulse

EXPLANATION OF LESSER-KNOWN TERMS MENU2

Adjusting arc

By adjusting this parameter, the pulse size can be modified. Values above 100 increase the bath temperature, while values below 100 decrease it. Change this parameter as little as possible. Correcting the synergy curve using the **P24** voltage correction is usually safer. Changing this parameter can be helpful to fine-tune the curve for material and gas that was not used in the curve generation.

Frequency of Double Pulse

Allows you to set the frequency of alternating higher and lower wire feed speed in Hz (indicates the number of cycles per second). The best results are usually achieved at 1.5 Hz.

Range of Double Pulse

This function allows you to specify two wire feed speeds (double pulse). It has been empirically determined that the usable speed ratio is 10 - 80% (factory value is 20%).

The example represents a panel set feed rate of 5 m/min and a double pulse current range of 40%.

The wire feed rates are calculated using the following formulas:

Higher speed = Panel set speed + (selected percentage of panel set speed divided by two)

6=5+(5*0,4/2)

Lower speed = Panel set speed - (selected percentage of panel set speed divided by two)

4=5-(5*0,4/2)

The cycle of Double Pulse

To adjust the higher feed rate time interval, express it as a percentage of the total double pulse time interval set by the double pulse frequency.

MENU 3 (SET UP)

The third level is called up by holding down the **P30** MENU button longer than 5 seconds. Parameters can be changed with the **P28** encoder. To move within the menu, use the side buttons P1 and P2 next to the text display P25 ESC. All changed parameters are saved.

MENU STRUCTURE 3 (SET UP)

Order	Description	MIN	DEFAULT	MAX	Notes	
1	Language				ENGLISH, ITALIANO, FRANÇAIS, DEUTSCH, ESPAÑOL, PORTUGUES, DUTCH, ČESKY SRBSKI, POLSKI, SUOMI	
2	Cooling mode	OFF	AUTO	ON		
3	Display contrast	0 %	50 %	100 %		
4	Remote control	OFF	OFF	RC08	OFF	No control
					RC03	1x potentiometer
					RC04	2x potentiometer
					RC05	1x UP/DOWN
					RC06	2x UP/DOWN
					RC08	
5	Lock	OFF	OFF	LOCK 2	OFF	All settings enabled
					LOCK1	All settings are turned off with the exceptions listed in the table in the "Lock" section.
					LOCK2	
6	Arc correction (voltage, wire)	VOLTS	VOLTS	m/min		
7	Clock counter	0.0 h	0.0 h	0.0 h		
8	Connection mode	OFF	OFF	NC02	OFF	Communication with interface disabled.
					NC01	Data is sent to the interface.
					NC02	Data is sent and received by the interface.
9	Torch button mode	OFF	OFF	T01	OFF	The normal state of the torch button
					T01	Pressing the torch button briefly during welding switches JOBs.
10	Service	CURRENT VALUE	CURRENT VALUE	CURRENT VALUE		Access to the calibration and verification services submenu
11	Push-Pull	OFF	OFF	ON		

TORCH BUTTON MODE

If T01 mode is activated, the JOB switch function during welding is activated by pressing the torch button. When T01 mode is selected, the torch button operates in 4T or 4T stair mode with the Bilevel function disabled. Therefore, if JOBs are stored in different modes, they are automatically loaded according to these conditions.

Lock

The lock has three levels.

TABLE OF FUNCTIONS THAT ARE NOT DISABLED BY THE LOCK

Lock	Type of remote control				
	RC08 user interface	RC03	RC04	RC05	RC06
OFF	All settings enabled.				
1	Torch button function selection (P4 button) Display of main welding parameters (button P11) Arc correction (encoder P24) Wire insertion (button P26) Gas test (button P27)		Arc correction (potentiometer Pot2)		Arc correction (UP / DOWN lever 2)
2	Torch button function selection (P4 button) Display of main welding parameters (button P11) Arc correction (encoder P24) Wire insertion (button P26) Gas test (button P27)	All settings enabled			

Disabling

If a lock type is selected, only the parameters allowed by the currently active lock can be edited. If you cannot remember the password, the only way to exit the lock is to perform a factory reset of the machine.

Notice:

The welder must be turned on and set up for welding.

HOW TO LOCK?

1. Hold **P30** MENU while turning on the machine with the main switch. MENU 3/SET UP appears.
2. With button **P2,** go to the 5th page - Lock
3. Use the **P28** text display encoder to select the desired lock level.
4. Press the **P30** MENU button to confirm. A dialogue box appears for you to enter your password.
5. You can select a password using the P28 text display encoder and the P1 and P2 buttons. The factory password is 0000. Note the password carefully. If you forget it, the solution is a complete machine restart. All saved settings, including JOBs, deletes, and the machine set itself to DEFAULT/factory settings.

HOW TO UNLOCK?

1. Press **P30** MENU, and the password input box appears.
2. Enter the password using the **P28** text display encoder and the **P1** and **P2** buttons.
3. Confirm the password by pressing **P30** MENU. The lock is switched OFF.

9. JOBs

JOB means the saved welding machine settings (programs) for a specific welding job. This machine has a memory divided into ten sequences, S00 - S09. The first sequence, S00, is named PROGRAMS. It can store up to 99 JOBs (J01 - J99). Jobs in the first S00 sequence can be called with up to nine digits.

Sequences S01 - S09 can be named with up to a nine-digit name. Each sequence S01 - S09 can store 10 JOBs (J00 - J09). Each JOB can be called with up to nine digits.

HOW TO SAVE A JOB?

1. Set the desired parameters on the machine.
2. Press the **P29** JOB. The JOB MENU opens. Use the text display encoder P28 to select the SAVE command.
3. Use the **P1** button and the **P28** encoder to select the sequence (SEQ). If it is not sequence S00, it can be named directly. To activate the naming, hold down the **P29** JOB button for 3s. Then, the cursor flashes at the location of the first character. The description is done with encoder **P28** and buttons **P1** and **P2**. Save the description by holding down the **P29** JOB button for 3 seconds.
4. Select the JOB location within the sequence in the same way. The naming of the JOB is analogous.
5. Confirm the save by pressing the **P29** JOB button.
6. JOBs can only be saved to accessible memory locations.

HOW TO ADDITIONALLY NAME A SEQUENCE OR JOB?

1. Press the **P29** JOB button. The JOB MENU opens. Use text display encoder **P28** to select the SELECT command.
2. Use the **P28** encoder and the **P1** and **P2** buttons to select a sequence or JOB to name.
3. Press and hold the **P29** JOB button for 3. P seconds until the cursor flashes at the first character. Use the **P28** encoder and the **P1** and **P2** buttons to make the description. Save the description by holding down the **P29** JOB for 3 seconds.

HOW TO DELETE A JOB?

1. Press the **P29** JOB button. The JOB MENU opens. Use the text display

encoder **P28** to select the DELETE command.

2. Press the **P1** and use the **P28** encoder to select the sequence (SEQ) and then the desired JOB.
3. Press the **P29** JOB button. The dialogue appears: DELETE JOB. Select YES and press **P29** JOB. The job is then deleted.

HOW TO CHOOSE A JOB?

1. Press the **P29** JOB button. The JOB MENU appears. Using the **P28** text display encoder, select the SELECT command.
2. Press the **P1** and **P2** buttons and the **P28** encoder to select the sequence (SEQ) and then the desired JOB.
3. Confirm the SELECTION by pressing the **P29** JOB button.

REMOTE TORCH CONTROL – SELECTION OF JOBs

Hold down the **P30** MENU button, and the MENU selection opens. Use the side buttons **P1** and **P2** to find the LOCK item and select lock K3. Confirm the selection by pressing **P30** MENU button. Using the **P28** text display encoder and the **P1** and **P2** side buttons, enter the password and confirm the password by pressing the **P30** MENU button. After confirming the password, the K3 marking appears on the bottom right of the machine display. Press button **P29** JOB, select SELECT JOBS and confirm by pressing button **P29** JOB. On the torch, the display shows a selection of stored JOBs. Press the (**+**) and (**-**) buttons on the torch to cycle through the held JOBs in the machine. By pressing the **P3** ESC button, you exit the selection of stored JOBs and unlock the entire main panel of the machine.

EXPORT/IMPORT JOBs USING USB DRIVE

Notice:

This function only works if the machine has software that supports exporting/importing JOBs via a USB disk and has an **A32** USB connector inside the machine.

You can transfer JOBs saved on one machine panel to another using a USB drive. When a USB drive is connected to the machine, the JOB MENU displays items related to the export and import process.

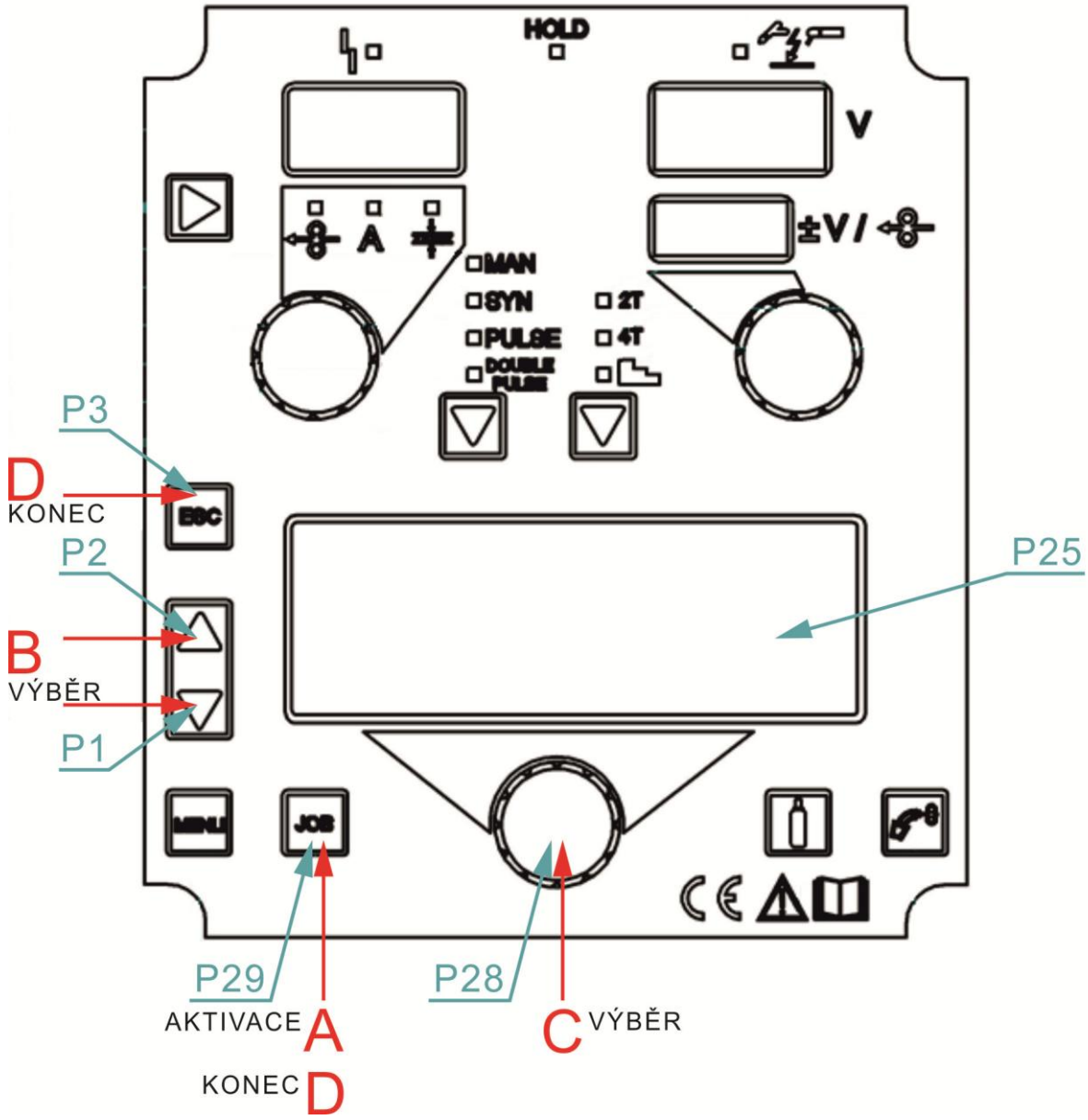
✋CAUTION✋

JOBs are exported to a USB drive under the same JOB number displayed on the machine panel. If you change the names/numbers of the saved JOBs on the UBS disk on the machine, they are still kept with the original JOB name/number after importing them into the destination panel. If the target panel already

contains JOBs with the same name as the ones you want to import, they are overwritten.

It is recommended not to change the names of files exported to the USB drive. The file extension (.bin) must never be changed.
The JOBs to be retained must have a different location on the destination panel than the JOBs exported to the USB drive.
Notice: The USB drive must be formatted as FAT32.

JOBs EXPORT



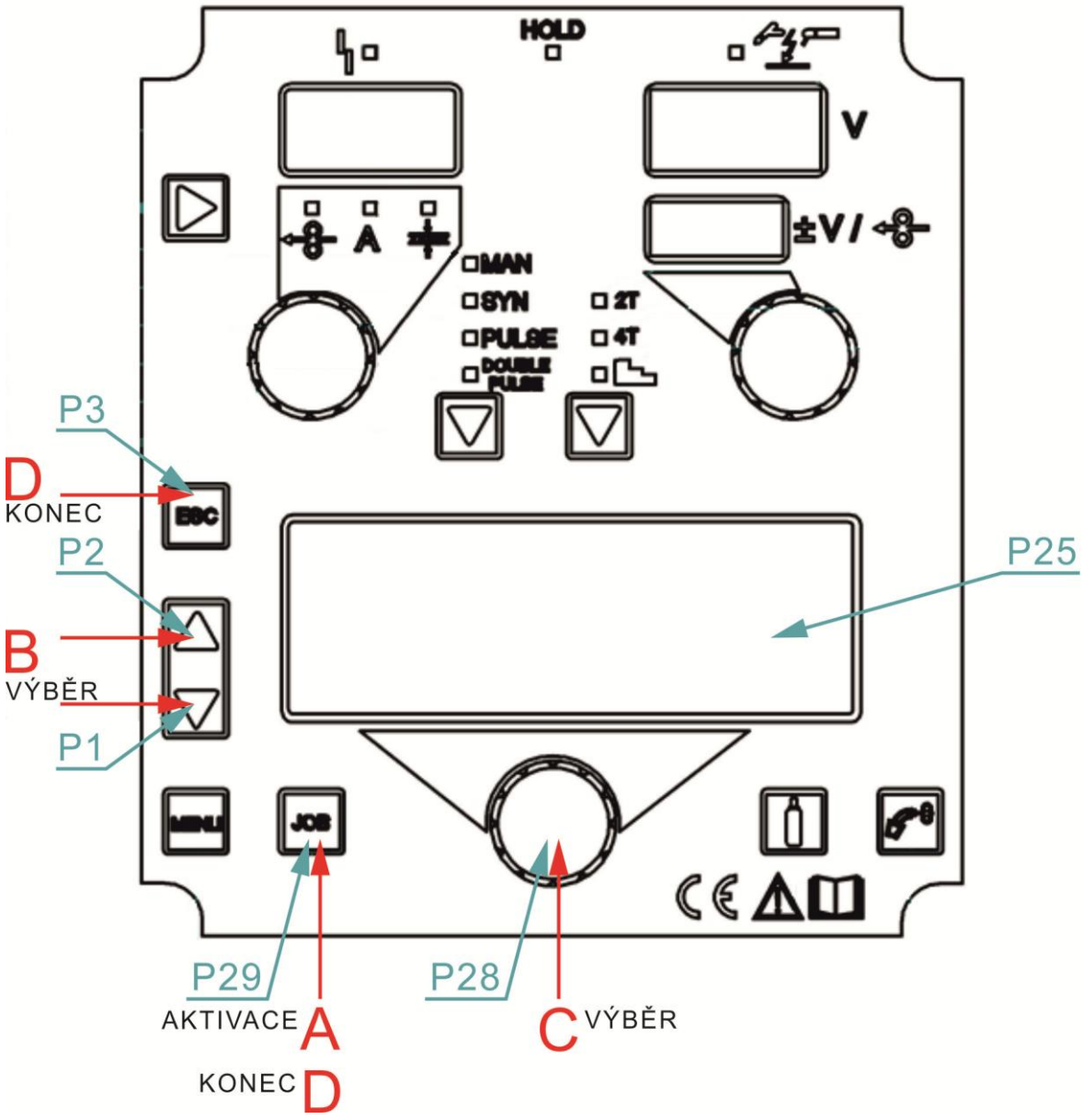
Pos.	Description
A	Plug the USB drive into the USB connector **A32**. - Press the **P29** JOB button to activate the JOB MENU. - JOB MENU appears on the **P25**.
B	Use the **P1** and **P2** buttons to select the **OPT** parameter. - A symbol shows the selected parameter.
C	Use the **P28** encoder to select the **USB EXPORT** function. - If no JOBs are stored in the machine, a message is displayed: **NO JOB**.
D	**Exit without confirmation:** - Press the **P3** ESC button.

	- This action automatically closes the menu. **Exit with confirmation:** - Press **P29** JOB.

Reporting table for export:

Report	Meaning of report	Causes
USB DEVICE NOT FOUND	USB device not found	- incorrectly inserted USB drive - The USB drive was removed before the operation was completed
EXPORT FAILED	The USB drive was removed before the operation was completed.	- USB not formatted as FAT32 - unidentified general error: Reinsert the USB drive and repeat the action - The connected USB drive is damaged
EXPORT IN PROGRESS	JOBs stored in the panel are being exported.	
EXPORT COMPLETE	Export process completed	

JOBs IMPORT



Pos.	Description
A	Connect the USB drive to the **A32** USB connector. - Press the **P29** JOB to activate the JOB MENU. - JOB MENU appears on the **P25** display.
B	Use the **P1** and **P2** buttons to select the **OPT** parameter. - The → symbol shows the selected parameter.
C	Use the **P28** encoder to select the **USB IMPORT** function.
D	**Exit without confirmation:** - Press the button **P3** ESC. - This action automatically closes the menu. **Exit with confirmation:** - Press **P29** JOB.

Reporting table for importing:

Report	Meaning of report	Causes
USB DEVICE NOT FOUND	USB device not found	- USB drive inserted incorrectly - The USB drive was removed before the operation was completed
FILE NOT FOUND	File not found	- No JOBS are stored on the USB drive
IMPORT FAILED	Import process error	- USB not formatted as FAT32 - unidentified general error: Reinsert the USB drive and repeat the action - The connected USB drive is corrupted
IMPORT IN PROGRESS	JOBS stored on the USB drive are being imported	
IMPORT COMPLETE	Import process completed	

JOB SELECTION VIA TORCH BUTTONS

When a torch with UP/DOWN control is installed, you can select JOBs in the JOB section using the torch buttons.
You can only scroll between JOBs if you are not welding.
During the welding process (with the JOB active), the parameter values can be temporarily changed using the UP/DOWN buttons; at the end of the welding process, the original values are restored.
When the DIGIMANAGER torch is installed, the above operations can be performed. JOBs scroll badly regardless of the section to which they belong.

Section 1			JOB not saved	Section 2			JOB not saved	Section 3		
J.01	J.02	J.03		J.05	J.06	J.07		J.09	J.10	J.11

Select and load one of the saved JOBs in the desired order (e.g. J.06) via the machine user interface.

10. Use the torch buttons to switch JOBs from section 2 (J.05, J.06, J.07).

11. TORCH CALIBRATION

WELDING CIRCUIT CALIBRATION

For consistent welding quality, it is essential to measure the welding circuit "r" resistance using the calibration function when using the wire feeder with its associated cable bundle. Calibration is particularly crucial when changing the cable bundle length or the torch. The welding circuit resistance is affected by the specific cable bundle and torch being used, so it's necessary to repeat the calibration procedure each time these components are changed.

CALIBRATION after power source RESET

If the power source total RESET is carried out, the calibration value is replaced by the default value.
The measured value is stored if a partial RESET is carried out.
Calibration is not compulsory; therefore, the machine keeps the default value if the user decides not to carry it out.

CALIBRATION PROCEDURE

The welding power source must be on and notset up for welding.
The power source remote control must be enabled.

P2 **P1** Press and hold down these buttons for 3 seconds.

TOUCH THE WORKPIECE WITH THE WIRE GUIDE TIP AND PRESS THE TORCH TRIGGER — The message will appear on display: **P25**

CAL — The message will appear on display: **P12.**

Display **P19** shows the welding circuit resistance value (mΩ) measured during the last calibration. After a total RESET, the default values appear.

Remove the gas nozzle from the torch and lean the guide wire tip (without the wire) onto the workpiece's surface, ensuring it sticks well; check that the contact between the guide wire tip and the workpiece is on a clean area of the piece's surface. Press the torch button to perform the calibration.

Calibration was carried out correctly.

CALIBRATION COMPLETED SUCCESSFULLY — The message will appear on display: **P25**

The calibration value appears on display: **P19.**

You can make several subsequent calibrations by pressing and releasing the torch trigger. In this case, the last value revealed is memorised.

Exiting without saving

Press the **P3** esc button

Exit and save

Press the **P30** button

Calibration carried out incorrectly

- CAL. Err. The message appears on display: **P12** - **P19.**
- REPEAT MEASUREMENT The message appears on display: **P25.**

Press the torch trigger to perform the calibration.

Exiting without saving

Press the **P3** esc button

12. RESET - FACTORY SETTINGS MIG/MAG

It is performed with the MIG/MAG wire feed connected and activated. Switch off the machine with the main switch. Then, switch the machine on with the main switch. Immediately after switching on the machine, the display lights up. As soon as the displays light up, press buttons **P11** and **P26** simultaneously. Wait until the MEMORY CLEANING dialogue appears on the text display. All settings are deleted, including the LOCKs. JOB sequences are deleted, too. The machine is then switched to manual mode, and the language is set to English.

1. Switch to MIG/MAG mode (LED **47** is lit, and the symbol --- is on the **P35** display). It is necessary to keep the **P45** button pressed for over 2 seconds. To set the generator control from the MMA, TIG
2. Press **P44** to select the appropriate MMA mode (MMA, CEL-cellulose electrodes)

☝**Caution**☝ Be careful that the electrode does not touch any metallic material because, in this mode, there is permanent welding voltage on the welding machine's quick couplers when the machine is switched on.

3. Set the desired current with the **P39** encoder, insert the electrode into the holder and start welding.
4. With the P32 and P31 encoders, you can fine-tune the Hot Start and Arc Force levels.
5. For grooving, follow the instructions of the grooving torch.

13. CONSUMPTION TABLES

TABLE OF WIRE CONSUMPTION DURING MIG/MAG WELDING

Wire diameter [mm]	Wire feed speed range [m/min]	Maximum wire feed speed [m/min]	Weight 1 m of wire [g]	Wire consumption per 1 minute of welding [g/min]	Wire consumption per 1 hour of welding [g/hr]
Steel wire					
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
Stainless steel wire					
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
Aluminium wire					
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 MIG/MAG 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

CONSUMPTION TABLE DURING TIG WELDING

Diameter of tungsten electrode [mm]	Argon flow rate [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

TABLE OF ELECTRODE CONSUMPTION DURING WELDING

Electrode diameter [mm]	Welding current range [A]	Electrode length [mm]	Weight of welded electrode without slag [g]	Electrode welding time [s]	Weight of welded electrode without slag in 1 s [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

12. MAINTENANCE AND SERVICE TESTS

1. Take great care with the wire feeder, namely the pulleys and the pulley area. When feeding the wire, the copper coating peels off, and small filings fall off, either carried into the bowden or contaminating the interior of the feeder and causing unwanted currents.
   Remove the deposited debris from the feeder area regularly, preferably by blowing with compressed air.
2. Maintain the welding torch regularly and replace worn parts in time. The stress on the torch is significantly higher when welding in pulse mode.
3. The most stressed parts are the wire feed, the gas nozzle, the tube, the wire guide bowden, the hose cable and the torch button.
4. The wire feed transfers the welding current to the wire and also directs the wire to the welding point. It has a lifetime of 3 to 20 welding hours (according to the manufacturer's data), which depends mainly on the quality of the material (Cu, Cr) and the quality and surface treatment of the wire. Replacement of the wire feed is recommended after the hole has worn down to 1.5 times the wire diameter.
5. For each installation and replacement, we recommend spraying the wire feed and its thread with a separating spray designed for this purpose.
6. The gas hose feeds gas used to protect the arc and welding bath. Metal splash clogs the nozzle, so clean it regularly to ensure a good and even flow of shielding gas and to prevent short-circuiting between the feed and nozzle. The clogging rate of the nozzle depends mainly on the correct adjustment of the welding process. Metal spatter is more easily removed after spraying the gas nozzle with a separating spray. After these measures, the spatter partially falls off, but it should still be removed from the space between the nozzle and the nozzle with a non-metallic rod every 10 to 20 minutes by tapping it gently. Depending on the flow's size and the work's intensity, the gas nozzle should be removed 2 to 5 times during the shift and thoroughly cleaned, including the gas supply channels between the nozzles. The gas nozzle must not be tapped hard as the insulating material may be damaged.
7. The spacer is also subjected to the effects of spray and thermal stress. Its service life is 30-120 welding hours (according to the manufacturer's data).
8. Bowden change intervals depend on wire cleanliness, maintenance of the

feeder's mechanism, and the pulleys' adjustment. Consistent use of wire cleaner significantly reduces bowden contamination. Clean them once a week with trichloroethylene and purge them with pressurised air. In case of heavy wear or blockage, the bowden should be replaced.

9. Blow out the power supply cabinet, especially the power element heat sinks and the water cooler with compressed air, periodically according to the level of environmental dustiness.
10. Regularly check the fluid level in the reservoir and the fluid lines, including the torch, for leaks. Avoid contaminating the coolant with mechanical dirt, grease or other substances, especially flammable ones. The vent hole in the reservoir cap must be kept clear.
11. ☝Notice☝ Beware of the risk of damage to electronic components from direct contact with compressed air from a short distance when cleaning the machine.
12. All PCBs should be blown from a distance of at least 20mm.
13. Do not touch the components on the PCBs. There is a risk of electrostatic charge damage.

CHECKING THE OPERATIONAL SAFETY OF THE POWER SUPPLY ACCORDING TO EN 60 974-1

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

13. SERVICE

PROVISION OF WARRANTY

1. The warranty includes the responsibility for the fact that the delivered machine has the characteristics specified in the binding technical conditions and standards at the time of delivery and during the warranty period.
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 a service organisation authorised by the manufacturer.
3. The legal warranty period is six months from the sale of the machine to the buyer. The warranty period starts on the machine's handover date to the buyer or the possible delivery date. The manufacturer extends this period to 24 months. The warranty period only includes when a legitimate claim is made once 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 and extraordinary wear and tear caused by lack of care or neglect of even seemingly insignificant defects, failure to fulfil the owner's obligations, his inexperience or reduced abilities, 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. During the warranty period, no modifications or changes to the machine that may affect the functionality of individual machine components are permitted.
6. Warranty claims must be made immediately after discovering a manufacturing or material defect and 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. The proof of purchase (invoice) with the serial number of the product on it or the warranty card on the last page of this manual is used as a warranty card.
9. A defect in the cooling circuit when using a fluid other than ACL ECO cannot be covered under the manufacturer's warranty.

WARRANTY AND POST-WARRANTY REPAIRS

1. Warranty repairs are carried out by the manufacturer or its authorised service organisations.
2. A similar procedure is followed in the case of post-warranty repairs.
3. Please report your complaint by e-mail at servis@alfain.eu or by phone at +420 563 034 626. The service hours are from 7:00 a.m. to 3:30 p.m. every working day.

14. ECODESIGN OF WELDING MACHINE

The equipment complies with EU Commission Regulation 2019/1784 requirements of 1 October 2019, laying down ecodesign requirements for welding equipment.
The power source efficiency values and the power consumption at rest are given in Ch. 3 . The material consumption is given in Ch. **Chyba! Nenalezen z droj odkazů.**.

15. 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.

16. 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 authorised dealer.

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