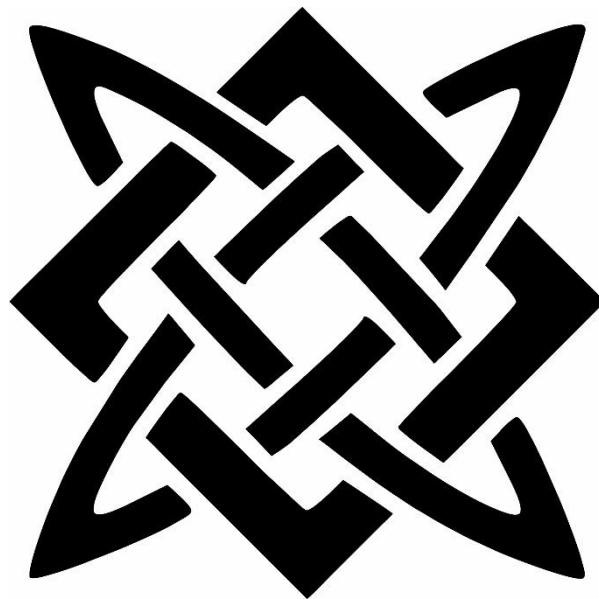


**CUTTING MACHINE**

**SVAROG 125 PLASMA  
SVAROG 125 PLASMA CNC**

**OPERATING AND MAINTENANCE INSTRUCTIONS**



## CONTENTS

1.	INTRODUCTION .....	3
2.	WORK SAFETY .....	4
	General requirements.....	4
	Protective equipment.....	4
	Risks - overview .....	4
	Prohibited activities .....	6
3.	OPERATING CONDITIONS .....	6
	Electromagnetic compatibility .....	7
4.	TECHNICAL DATA.....	7
	Torches .....	8
	Cutting parameters - SVH/SVS-160 torch (fine grain steel) .....	8
	Operation on the power generator.....	9
	Pressure air source requirements.....	9
	Connection to the central air distribution system .....	10
	Pre-set Water Separator and Air Filter for SVAROG PLASMA.....	11
5.	DESCRIPTION OF MACHINE AND FUNCTIONS.....	12
	Main parts .....	12
	Control panel.....	13
6.	MACHINE ACCESSORIES .....	16
	Part of delivery SVAROG 125 HAND PLASMA .....	16
	Accessories to order.....	16
7.	HAND TORCH AND CONSUMABLE PARTS .....	17
	SV-FIT system .....	17
	Lifetime of consumable parts.....	18
	How to choose the right consumable parts.....	18
	Names of SVH torch parts.....	19
	SVH-125 torch (DZ 60% = 125 A) .....	19
	Super Long Nozzle.....	22
	Bevel Tools and Circle cutting .....	22
	Single-use Cartridge.....	23
	SVH-160 torch (DZ 100% = 125 A) .....	24
8.	COMMISSIONING THE MACHINE .....	25
9.	HAND CUTTING .....	26
	Causes of poor quality cuts .....	28
10.	MACHINE CNC CUTTING .....	29
11.	TORCH WIRING DIAGRAM.....	29
12.	MAINTENANCE .....	29
13.	ERROR MESSAGES .....	30
14.	SERVICE .....	31
	Provision of a guarantee .....	31
	Warranty and post-warranty repairs .....	32
15.	DISPOSAL OF ELECTRICAL WASTE .....	33
16.	WARRANTY LIST .....	33

# 1. INTRODUCTION

Dear Consumer,

ALFA IN a.s. thanks you for purchasing our product and believes that you will be satisfied with our machine.

The SVAROG 125 PLASMA machine is designed for metal cutting based on modern technology of material cutting by means of a thin beam of plasma gas. This technology has several advantages over other methods:

1. High cutting speed
2. Quality cut with minimal area of altered material structure
3. Less thermal deformation of the material to be cut
4. Possibility of cutting carbon and high alloy steels, stainless steels and non-ferrous metals
5. The method does not require any special gases
6. Smaller costs

The SVAROG 125 PLASMA is equipped with a proportional valve that allows precise setting of the desired working gas pressure and display of the pressure value on the display. The proportional valve allows precise adjustment of the required pressure or gas flow and enables high cutting accuracy and stability. The machine is equipped with an eco-friendly "fan on demand" function. When cooling is not needed, the machine automatically switches off the fan.

SVAROG 125 PLASMA is designed for quality cutting of materials up to a maximum thickness of 50 mm carbon steel (for more information see 4. **TECHNICAL DATA** TECHNICAL DATA). Productive cutting of carbon steel is possible up to a thickness of 25 mm.

With lower cutting quality requirements, material up to 55 mm thick can be cut (separated).

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



## 2. WORK SAFETY

### General requirements



1. The machine must only be operated by personnel thoroughly familiar with the plasma cutting of material and who have received the appropriate training.
2. The device must be disconnected from the mains before any electrical work, removal of the cover or cleaning.
3. For the cutting machine, it is necessary to perform a periodic inspection once every 6/12 months by an authorized employee – see paragraph Maintenance.
4. For safety reasons, protective gloves must be worn when cutting with plasma. These gloves protect you from heat radiation and from splashing droplets of hot metal.
5. Wear sturdy insulated footwear. Open shoes are not suitable as droplets of hot metal can cause burns.
6. Do not look into the cutting arc without face and eye protection. Always wear a good quality welding helmet with the protective filter intact.
7. Persons in the vicinity of the cutting site must also be informed of the danger and be provided with protective equipment.
8. When cutting, especially in small spaces, it is important to ensure a sufficient supply of fresh air, as cutting produces harmful fumes.
9. Do not carry out cutting work on gas, oil, fuel etc. tanks (even when empty) as there is a risk of explosion.
10. Special regulations apply in areas with explosion hazards.

### Protective equipment

1. Welding helmet with protective filter min. 10
2. Welding gloves
3. Welding clothing, apron
4. Closed shoes

### Risks - overview

1. Risk of electric shock
2. Ultraviolet and light radiation
3. Danger of inhalation of gaseous fumes and dust particles
4. Danger of burns
5. Noise

 **Warning**  There is a risk of electric shock, especially if the insulation of the torch and the supply cable is damaged and the machine covers are broken. Note that voltages of up to 330 volts can occur at the torch.  
The torch complies with the EN 60974-7 standard, voltage class M.

 **Notice** **Machine torch cannot be used for non-CNC versions!** **Notice** 

1. It is forbidden to operate the machine with damaged insulation of the torch or the supply cable.
2. Never operate the machine with dismantled or damaged covers. In addition to the risk of injury, cooling efficiency decreases and interference levels increase.
3. It is forbidden to operate the machine in wet conditions and outdoors in rain or snow.
4. Ensure that the earth clamps are properly clamped, which also reduces the risk of electric shock.
5. Use prescribed work equipment, keep it dry.
6. People with pacemakers are exposed to an increased magnetic field and are briefly exposed to an electromagnetic field during ignition, which could affect the pacemaker's function. A doctor should be consulted beforehand.
7. The cutting and piling arc is a source of very intense light and especially ultraviolet radiation. This radiation can cause considerable damage to vision in a very short time and, if exposed for a longer period, can cause redness and even burns to uncovered parts of the skin.
8. Use a welding helmet equipped with an intact filter with a protection level of at least 10.
9. The danger of burns arises when cutting from flying particles of hot metal, from the plasma arc and from hot cutting material. A thin beam of hot plasma (4th state of matter) reaches up to 10,000°C in its core!
10. Never point the torch towards your eyes, body or another person when lighting.
11. Always use good quality and undamaged welding gloves, apron and welding clothing including closed shoes and headgear.
12. Cutting produces large amounts of gaseous emissions and dust particles from the material being cut.
13. High temperatures cause chemical reactions and the formation of various oxides and other compounds, some of which are harmful to health.
14. Particularly hazardous fumes are produced when cutting materials containing lead, beryllium, cadmium (coated parts) and materials with a paint coating.
15. Ultraviolet radiation and high temperatures also produce significant amounts of ozone and nitrogen oxides.
16. Exceeding the concentration of these gases above the values set by the hygiene standards can cause damage to health, especially with prolonged exposure.
17. The workplace must be well ventilated and equipped with an efficient extraction system.

18. In addition, a respiratory mask is required when cutting material that produces particularly dangerous fumes.
19. The machine produces a noise level of 80-85 dB.
20. For prolonged work, we recommend the use of hearing protectors.

### Prohibited activities

1. It is forbidden to use the machine in explosive areas and areas where flammable and combustible substances may be present.
2. It is forbidden to carry out cutting of containers with residues of any flammable or unknown substances.
3. It is not permissible to carry out cutting on closed pressure vessels without first releasing the pressure and leaving them open.

**👉Notice👉** Persons with implanted pacemakers must not operate the machines or move in close proximity to them! There is a risk of impaired pacemaker function!

## 3. OPERATING CONDITIONS

1. The 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 device complies with IEC 61000-3-12.
3. The cutting machine is tested according to the standard for protection class IP 23 S, which provides protection against the ingress of solid bodies with a diameter greater than 12 mm and against the ingress of water falling in a vertical to oblique direction up to an inclination 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 in such a way that 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 (e.g. during grinding), are drawn into the machine.
8. If the machine overheats, cutting is automatically interrupted.
9. All interventions in the el. equipment, as well as repairs (removal of the mains plug), may only be carried out by an authorised person.
10. SVAROG 125 PLASMA is designed for a mains voltage of 3x400 V.
11. The relevant mains voltage and input power must be matched to the mains plug.
12. For the cutting machine, it is necessary to perform a periodic inspection once every 6/12 months by an authorized employee – see paragraph Maintenance.

13. The cutting machine is primarily designed for industrial environments in terms of interference. Special precautions may be necessary for use in other areas (see EN 60974-10).
14. Above all, the machine must be protected from:
- Through moisture and rain
  - Mechanical damage
  - Draughts and possible ventilation of neighbouring machines
  - Excessive overloading - exceeding technical parameters
  - Rough handling

### Electromagnetic compatibility

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

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

 Notice



Users are advised that they are responsible for any interference from welding.

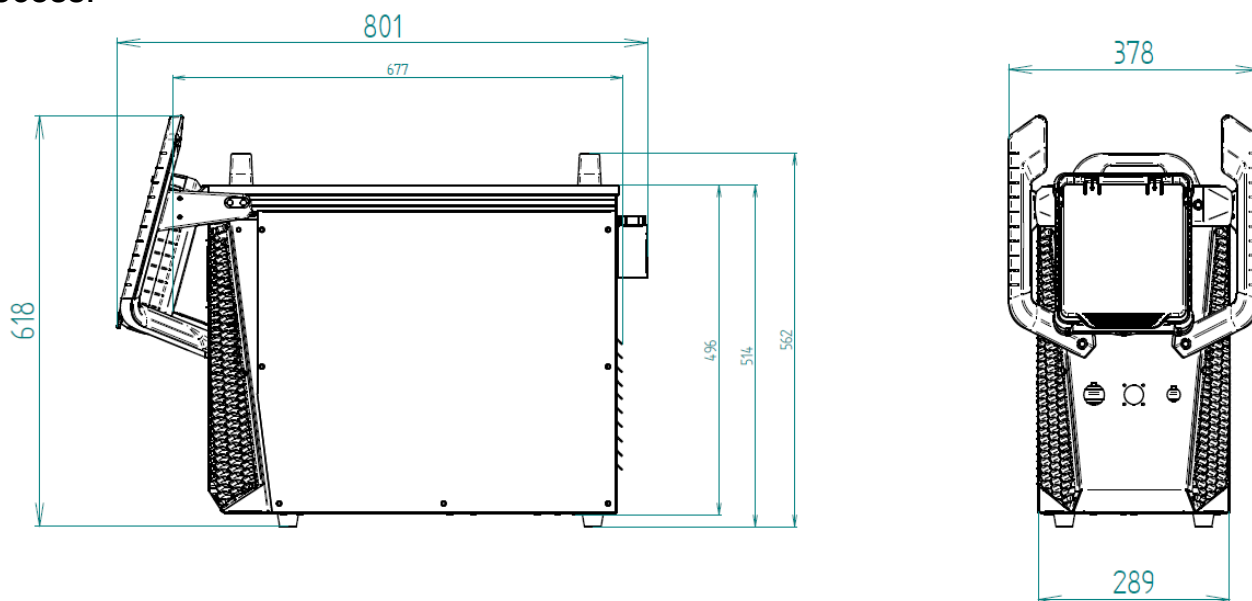
## 4. TECHNICAL DATA

Method		Plasma cutting
Mains voltage	V/Hz	3 x 400/50-60
Cutting current range	A/V	20/88,0 - 125/170,0
No-load voltage $U_{20}$	V	400
Protection	A	@ 50
Max. effective current $I_{1eff}$	A	44
Cutting current (DZ=100%) $I_2$	A	125
Cutting current (DZ=60%) $I_2$	A	125
Cutting current (DZ=x%) $I_2$	A	100%=125
Current regulation		Continuous
Cover		IP 23 S
Standards		EN IEC 60974-1, EN 60974-10 ar. A
Dimensions (w x d x h)	mm	378 x 810 x 619
Weight	kg	49
Efficiency	%	92
Standby power $P_{10}$	W	37
Operating ambient temperature	°C	-10 ÷ +40
Relative humidity	%	90
Altitude	m	max. 1000 m

DZ - load time. The parameter indicates in percentage the time of a ten-minute



interval (at ambient temperature and machine temperature 40° C) during which the machine thermal protection or circuit breaker does not switch off the burning process.



### Torches

Max. inlet air pressure	bar	8,5
Working pressure (cutting, SVH/SVS 125/6,7-9m torch)	bar	5,0 - 6,0
Working pressure (grooving, SVH-125 6.7m torch)	bar	4,0 - 4,5
Air consumption at 125 A (SVH/SVS 125/6,7-9m torch)	l/min	295
Working pressure (cutting, SVH/SVS 160/6,7-9m torch)	bar	5,0 - 6,0
Working pressure (grooving, SVH-160 6.7m torch)	bar	3,0 - 3, 5
Air consumption at 125 A (torch SVHSVS 160/6,7-9m)	l/min	370
Arc ignition		pneu-mechanic

### Cutting parameters - SVH/SVS-160 torch (fine grain steel)

Productive piercing/cutting ( $I_{2max}$ )*	mm	25*	
Productive piercing/cutting ( $I_{2 DZ=100\%}$ )**	mm	25**	
Maximum piercing/cutting ( $I_{2max}$ ***)	mm	35***	
Max. cut (separation) (side start) ( $I_{2max}$ )	mm	55	
Quality cut ( $I_{2max}$ ) $\Delta$	Fine grain steel	mm	50 $\Delta$
	Stainless steel	mm	45 $\Delta$
	Aluminium	mm	35 $\Delta$
	Copper	mm	30 $\Delta$



Max. productive speed (material thickness) <sup>△ △</sup>		
6 mm	m/min	5,96 <sup>△△</sup>
12 mm	m/min	2,51 <sup>△△</sup>
25 mm	m/min	0,76 <sup>△△</sup>
Parameters were measured under test conditions on ALFATEC CNC tables, not necessarily the maximum values.		

\* A burning process where the plasma is set to the maximum cutting current and good cut quality is achieved at a relatively high cutting speed.

\*\* A burning process where the plasma is set to a cutting current corresponding to 100% of the load and good cut quality is achieved at a relatively high cutting speed.

\*\*\* A burning process where the plasma is set at maximum cutting current and satisfactory cut quality is achieved.

△ A burning process where the plasma is set to the maximum cutting current and a good quality cut is achieved.

△△ Max. cutting speed to ensure good cutting quality at maximum cutting current.

### Operation on the power generator

Cutting current	Sustained performance of power generator
125 A	50 kVA
105 A	39 kVA
85 A	26 kVA
70 A	20 kVA
40 A	16 kVA
30 A	11 kVA



The continuous power of the central unit is given only for the connection of the plasma as the only appliance.

### Pressure air source requirements

The supply air pressure must not exceed 8.5 bar and must not be less than 6.5 bar. The operating pressure and air consumption for the prescribed torch are given in chapter 4 TECHNICAL DATA.

For reliable operation of the plasma cutter and quality cuts, we recommend the following recommendations when selecting the appropriate type of compressor:



1. The compressor must be capable of delivering a minimum of 295/370 litres/min of **compressed air** on a continuous basis (for SVH/SVS-125/ or SVH/SVS-160 torches). In the catalogues, this parameter is referred to as

"filling quantity".  **Caution**  **Not to be confused with "suction quantity"!**

2. The aerator must be equipped with a drain valve.
3. It is essential that the compressor is equipped with a compressed air cooler or a sufficiently large air receiver. Otherwise, heated air enters the distribution

system and may contain significant amounts of water that cannot be captured in the separators. As the air cools after it passes through the ducts, it may reach the dew point, causing water droplets to be expelled, which may be after the separator. The optimum size of the airbox is at least 100 litres.

4. An efficient filter with sufficient capacity, an oil and condensate separator or a pressure regulator must be installed at the outlet if the compressor operating pressure is higher than 8.5 bar. These elements must be rated for a flow rate of at least 370 l/min so as not to cause a drop in outlet pressure during cutting.
5. The inside of the airbox should be coated against corrosion.
6. The compressor intake should be fitted with an efficient intake air filter, especially for mobile compressors when operating in dusty environments.

 **Caution**  **Some compressors have a built-in pressure air mixer at the outlet. Under no circumstances must the plasma cutter be connected to this outlet! This would contaminate the entire pneumatic system and could damage the torch.**

### **Connection to the central air distribution system**

1. Before connecting, determine the working pressure in the system and the extent of its fluctuation.
2. During cutting, the working pressure must be between 5.0 and 6.0 bar. To achieve maximum cutting performance, we recommend that the pressure does not drop below 5.5 bar.
3. Check the performance and technical condition of the central compressor(s). The same requirements as above apply here.
4. Check the design and condition of pressure air filtration and condensate trapping.
5. Ensure that the system is not centrally lubricated.
6. Include an additional filter and separator at the connection point closest to the cutter. This is particularly important for older pipes made of conventional steel pipes where the inner walls may be badly corroded. A filter and separator is essential for systems with long ducts that pass through cold environments where the compressed air may cool to the dew point, causing condensation of water droplets.

## Pre-set Water Separator and Air Filter for SVAROG PLASMA

To achieve high quality cutting and to avoid serious malfunctions on the torch, it is strongly recommended that a water separator or at least a filter is always included in the water supply.



Fig. 1 Air Filter and Water Separator

Item.	Code	Description
S1	5304	Set for filter AT 1000 to SVAROG PLASMA
S2	5302	Air filter AT 1000
S3	7704	Water separator including fittings
S5	6079	Condensate evacuator

👉 Please note 👉 The maximum operating pressure of the AT 1000 is 8.5 bar.

## 5. DESCRIPTION OF MACHINE AND FUNCTIONS

### Main parts

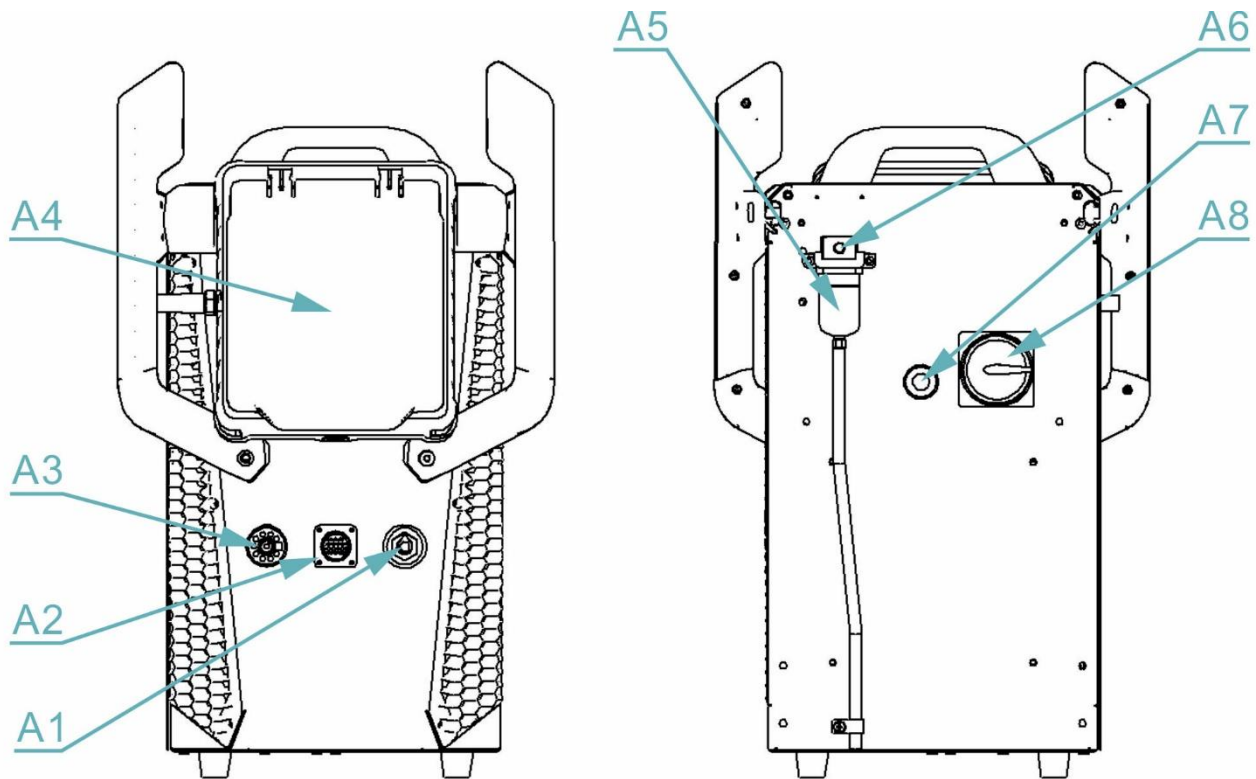


Fig. 2 Main machine parts, front and rear view

Item.	Description
A1	Quick coupler - earth cable 1
A2	Connector - remote control (CNC version only)
A3	Connector - torch
A4	Control panel
A5	Separator
A6	Air connection
A7	Network cable
A8	Main switch

## Control panel

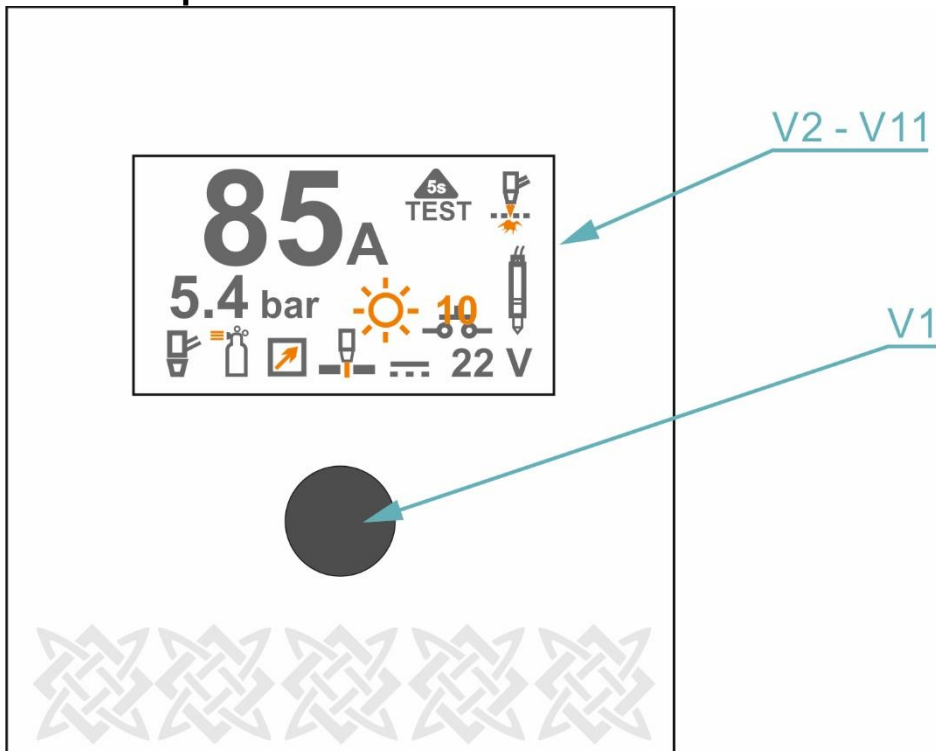




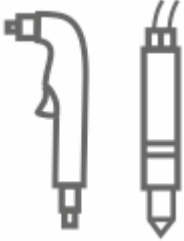













Fig. 3 Control panel

Item.	Icon	Description
V1	---	Encoder with button
V2-V11	---	Display with overall icon layout
V2	85 <sub>A</sub>	Cutting current <ul style="list-style-type: none"> <li>• always active when the machine is switched on</li> <li>• change the value by turning the encoder <b>V1</b></li> </ul>
V3	5s TEST	Gas test <ul style="list-style-type: none"> <li>• active when <b>V1</b> encoder is pressed for 5 s</li> <li>• change the value by turning the encoder <b>V1</b></li> <li>• Exit the gas test by briefly pressing the <b>V1</b> encoder</li> </ul>
V4	5.4 bar	Pressure <ul style="list-style-type: none"> <li>• active after a short press of the <b>V1</b> encoder</li> <li>• change the value by turning the encoder <b>V1</b>; the selection does not need to be confirmed, it is saved automatically</li> <li>• after 5 s of inactivity the machine switches back to the</li> </ul>

		cutting current setting
V5		<p>Cutting modes</p> <ul style="list-style-type: none"> <li>• active after 2 short presses of encoder <b>V1</b></li> <li>• change the mode by turning the encoder <b>V1</b>; the selection does not need to be confirmed, it is saved automatically</li> <li>• after 5 s of inactivity the machine switches back to the cutting current setting</li> </ul>
		Cutting of solid material
		Cutting of perforated material,
		Grooving
V6	bar Mpa Psi	<p>Change of units</p> <ul style="list-style-type: none"> <li>• active after 3 short presses of encoder <b>V1</b></li> <li>• units can be changed by turning the encoder <b>V1</b>; the selection does not need to be confirmed, it is saved automatically</li> <li>• after 5 s of inactivity the machine switches back to the cutting current setting</li> </ul>
V7		<p>Display brightness</p> <ul style="list-style-type: none"> <li>• active after 4 short presses of encoder <b>V1</b></li> <li>• the value can be changed by turning the encoder <b>V1</b>, the selection does not need to be confirmed, it is saved automatically</li> <li>• after 5 s of inactivity the machine switches back to the</li> </ul>

		cutting current setting
V8	22 V	Current voltage <ul style="list-style-type: none"> <li>this value cannot be changed</li> </ul>
V9		Manual/machine mode <ul style="list-style-type: none"> <li>the icon is displayed according to the type of torch connected</li> </ul>
V10		Active cutting input
V11		The consumable parts on the torch are complete.
		Gas flow is active.
		Remote current setting is active.
		The arc is active.
		There's tension on the arc.
		The S mark indicates that the machine and torch are suitable for operations in environments with an increased risk of electric shock in accordance with EN 60974-1.
		CE mark declaration of the manufacturer's stairs with European directives and standards
		EAC product safety mark and EMC compliance for export to the Russian Federation, Belarus and Kazakhstan.
		Read the operating instructions carefully before use.
		Attention - general danger.

Remark:



Switch between parameters/modes by pressing encoder **V1**. The active parameter/mode is highlighted in orange, when switching to another parameter/mode the original variable will be highlighted in grey and the new one in orange.

## 6. MACHINE ACCESSORIES

### Part of delivery SVAROG 125 HAND PLASMA

Depending on the customer's choice, the machine can be equipped with either SVH-125 or SVH-160 torch

Item.	Code	Description
Fig. 8	7039	Plasma SVH-125 manual 75° torch (option)
Fig. 8	7331	Plasma SVH-160 manual 85° torch (option)
Fig. 6	7076	Coax. cable 6.7 m SV-105-160 6 PIN
7332	V9030092	Earthing cable 6m 10-25 200 A 16 mm2

### Accessories to order

Item.	Code	Description
	7113	START kit for SVH-125 torch
		START kit for SVH-160 torch
Fig. 5	5.0542	SVAROG 105-125 Plasma trolley
Fig. 4	5.0508	Welding trolley P 80
Fig. 6 B	7088	Coax. extension cable 6,0 m SV-105-160 6 PIN
	7101	Lubricant silicon WSF-2 gross 6 g
	7333	Plasma SVH-160 manual 15° torch
	7040	Plasma SVH-125 manual 15° torch
Fig. 8	7087	Plasma SVH-125 hand torch, handle 80 cm 90°
Fig. 7	7089	Plasma SVH-125 hand torch, handle 130 cm 90°
Fig. 7	7090	Plasma torch SVH-125 manual, handle 130 cm 45°
Fig. 7	7091	Plasma SVH-125 manual torch, handle 80 cm 45°
Fig. 7	7092	Plasma SVH-125 hand torch, handle 80 cm 15°
Fig. 7	7093	Plasma SVH-125 hand torch, handle 130 cm 15°
Fig. 10	5872	Bevel tools PT 40, 60, SCP 60, TH-70,125
	7175	Compass - set SVH-105,125
Fig. 1	5302	Air filter AT 1000
	5304	Set for filter AT 1000 to SVAROG PLASMA
	S777c.	Barracuda S777C self-drying helmet

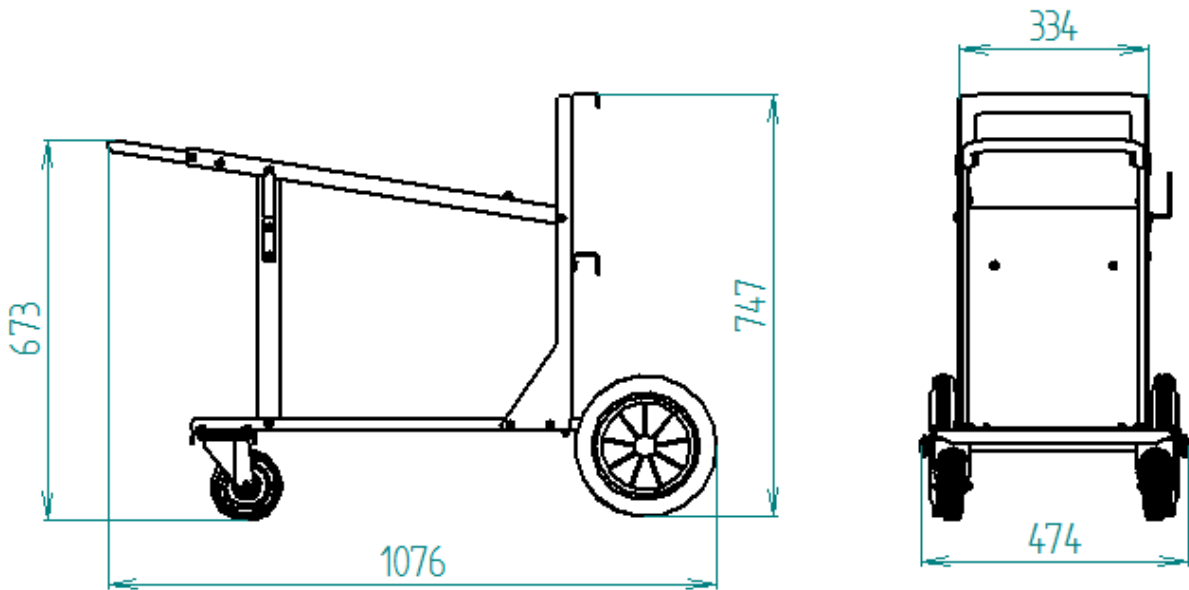


Fig. 4 Trolley P 80

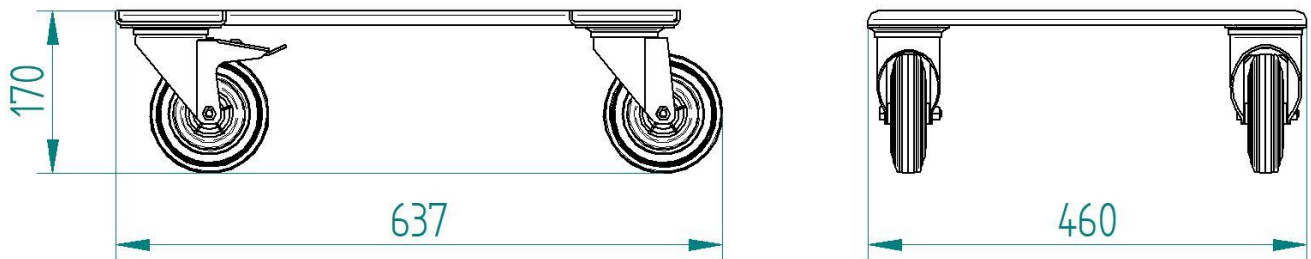
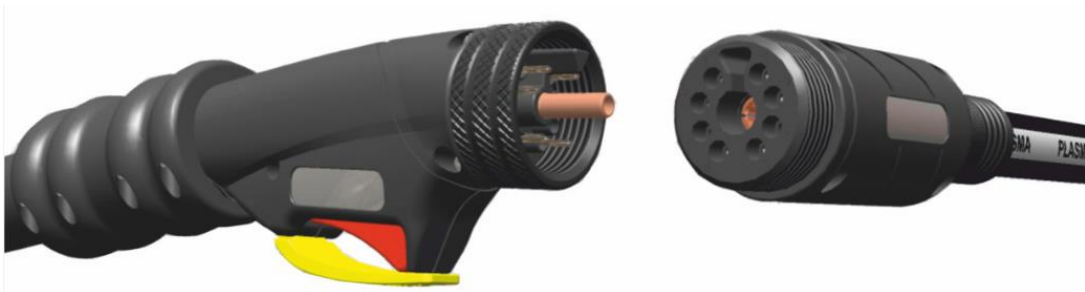


Fig. 5 SVAROG 105-125 Plasma trolley

## 7. HAND TORCH AND CONSUMABLE PARTS

### SV-FIT system

The SV-FIT system allows great variability when using different welding torch ends or allows the torch length to be extended from the standard 6.7 m to 12.7 m by purchase. (Extensions up to a total length of 16 m can be ordered.)



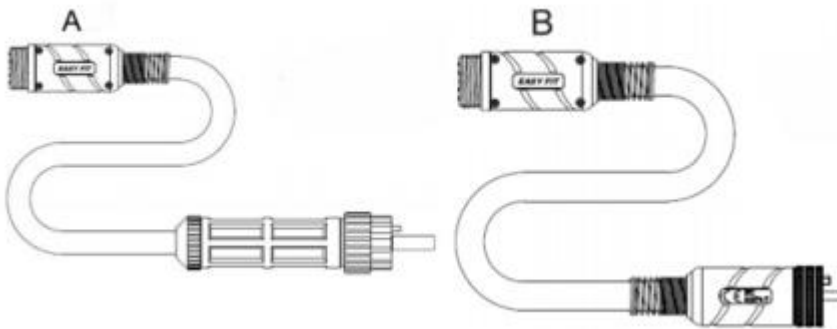


Fig. 6 SV-FIT system



Fig. 7 SVH torchs with long handles, SV-FIT system

### **Lifetime of consumable parts**

The need to change consumable parts on your torch depends on the thickness of the material to be cut, the length of the cut, the air quality (presence of moisture, oil and dirt), the way the cut starts (from the side or through), the appropriate piercing height, the cutting mode (solid material or perforated).

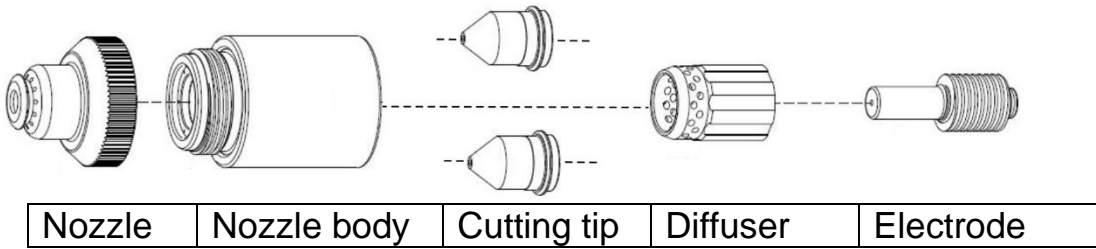
In general, the current set of consumable parts lasts on average 1 to 3 hours of cutting (arc firing). Under normal conditions, hand cutting will wear out the cutting tip first, with roughly half as much time and up to once as much time for the electrode. The service life of the SVH-160 torch consumable parts is approximately twice that of the SVH-125 torch.

### **How to choose the right consumable parts**

All SVH-125 torch types use the same consumable parts which are protected, so the nozzles can be dragged over the material to be cut.

For the best quality of cut, it is essential to use the appropriate consumable parts assemblies. Individual assemblies by performance and type, including order numbers, are listed in the table below.

**Names of SVH torch parts**



For cutting in very difficult to reach areas you can use the SUPERLONG NOZZLE assembly, Fig. 9

**SVH-125 torch (DZ 60% = 125 A)**

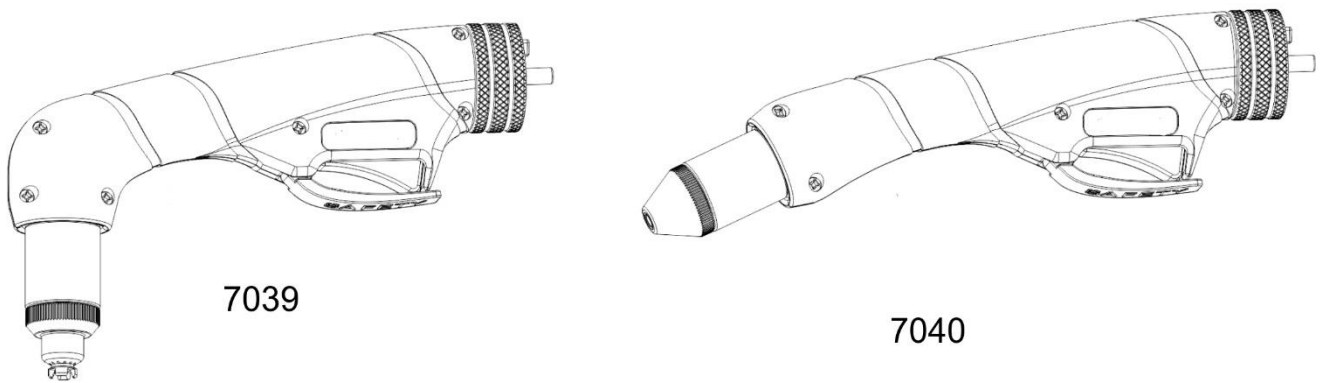
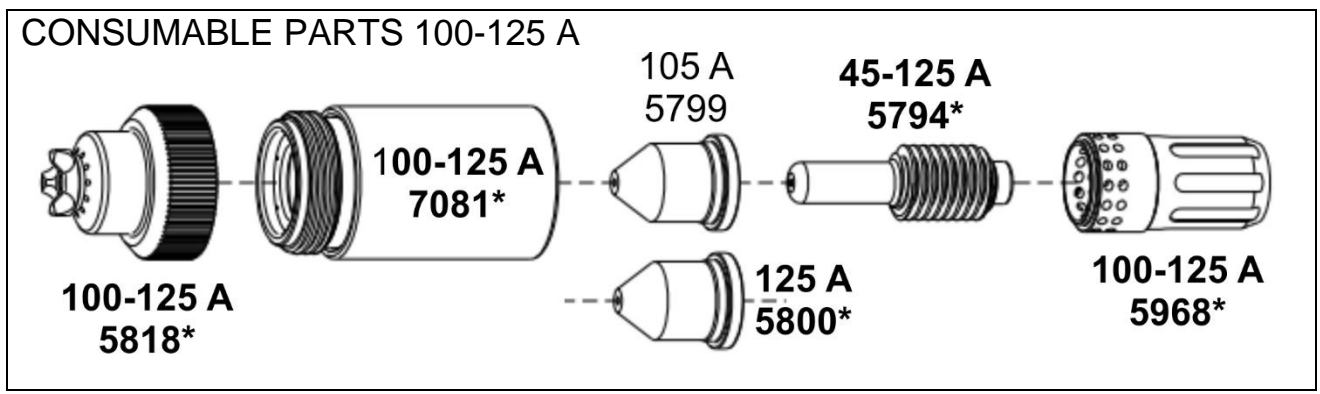
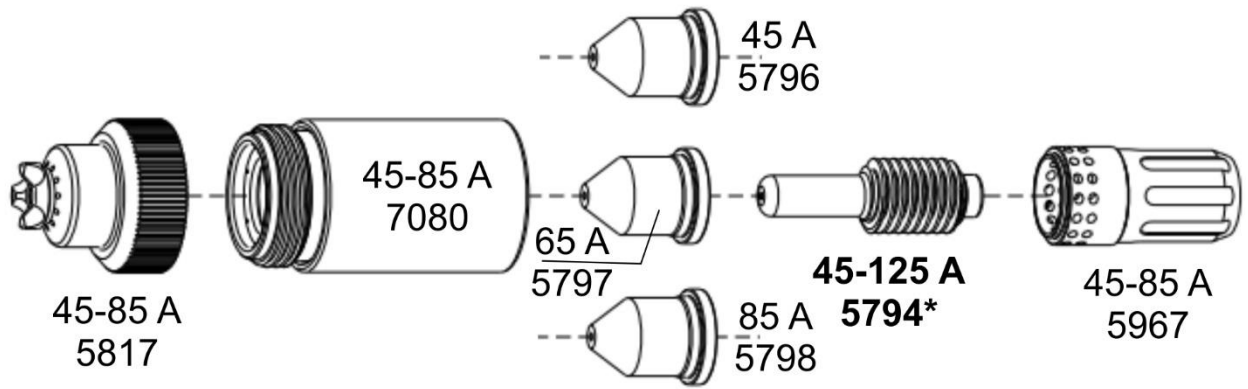


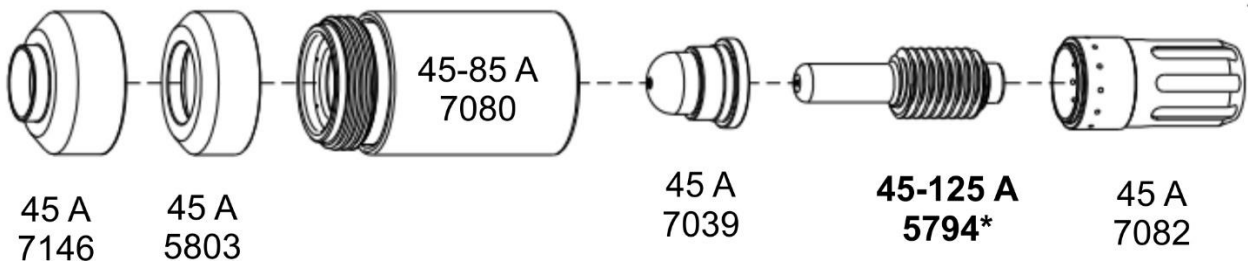
Fig. 8 SVH-125 hand torch



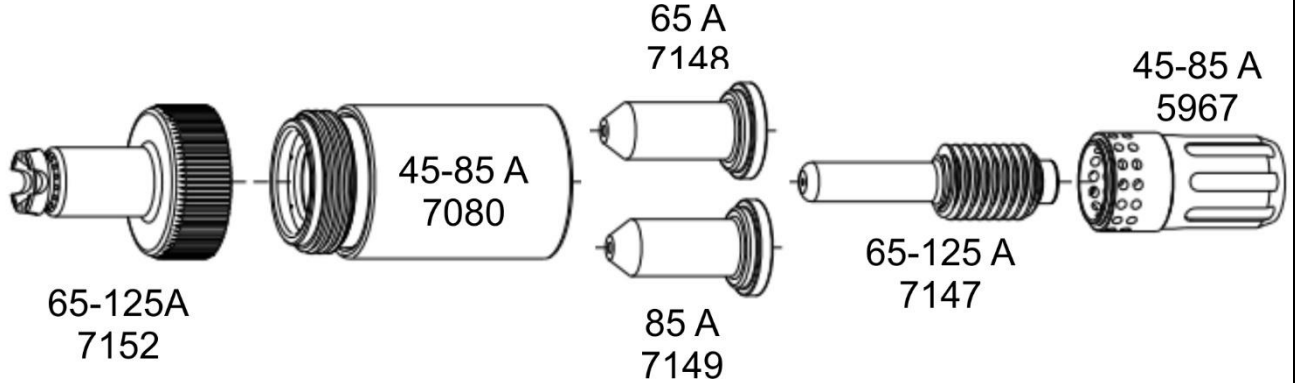
CONSUMABLE PARTS 45-85 A

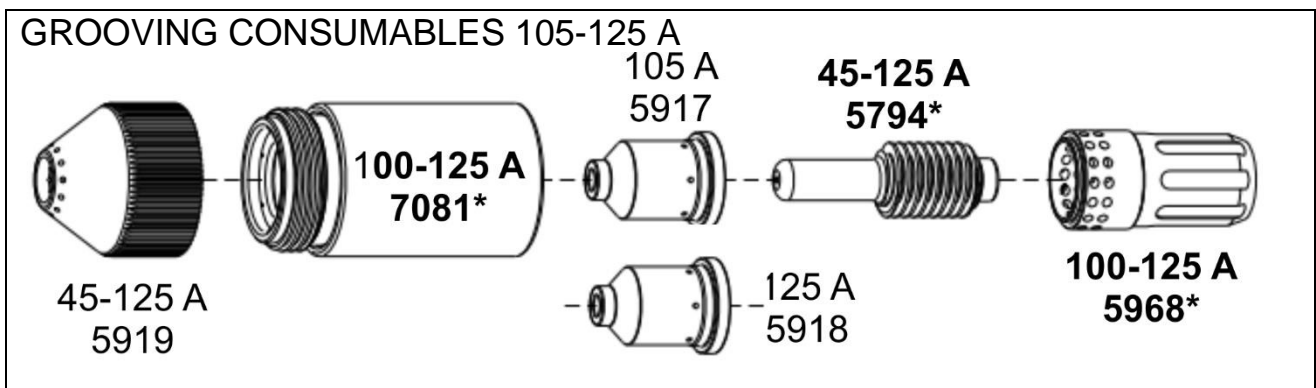
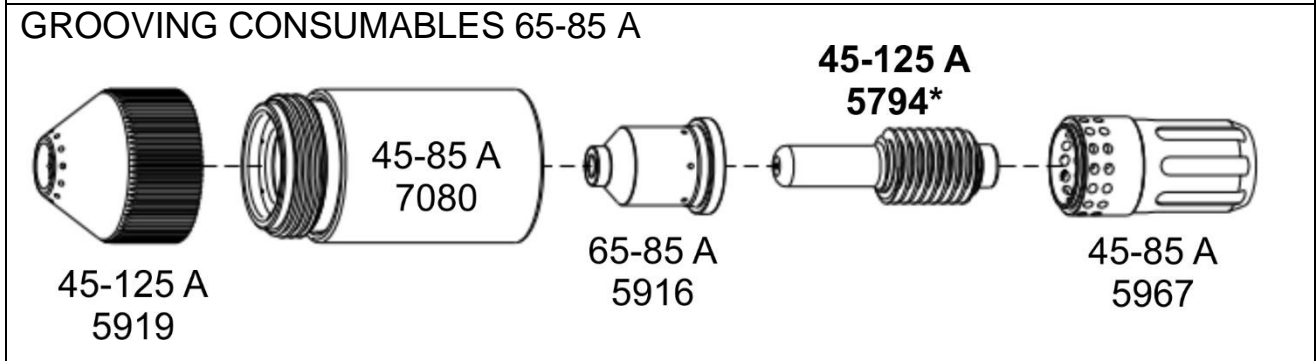
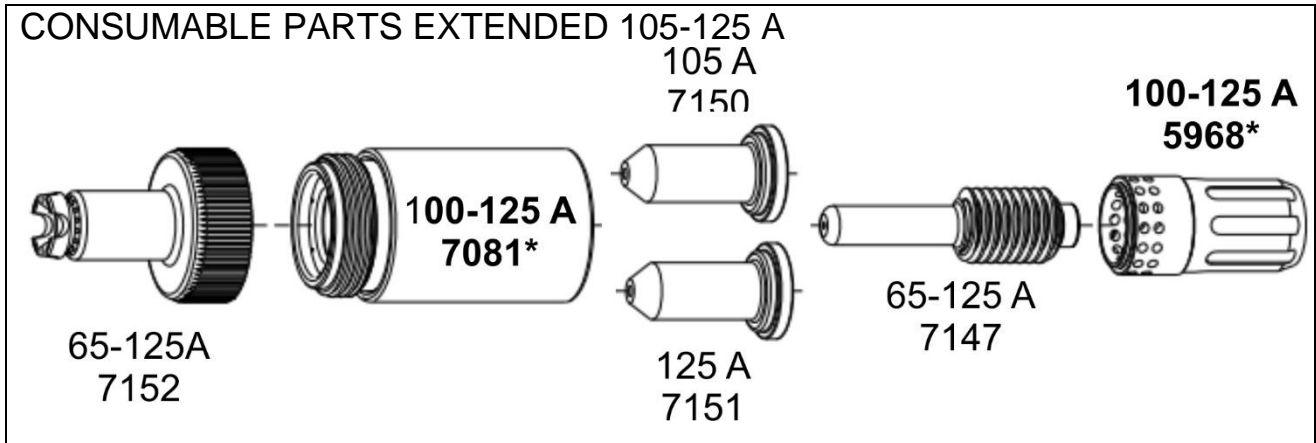


CONSUMABLE PARTS PRECISION CUT 45 A



CONSUMABLE PARTS EXTENDED 65-85 A





### START kit for SVH-125 torch

7113	START kit for SVH-160 torch	Number of
5799	Cutting tip 105A	2
5800	Cutting tip 125A	5
5797	Cutting tip 65A	2
5798	Cutting tip 85A	2
5794	Electrode 45-125A	10
5817	Nozzle 45-85A	1
7080	Nozzle body 45-85A eco	1
5967	Gas diffuser 45-85A eco	1

## Super Long Nozzle

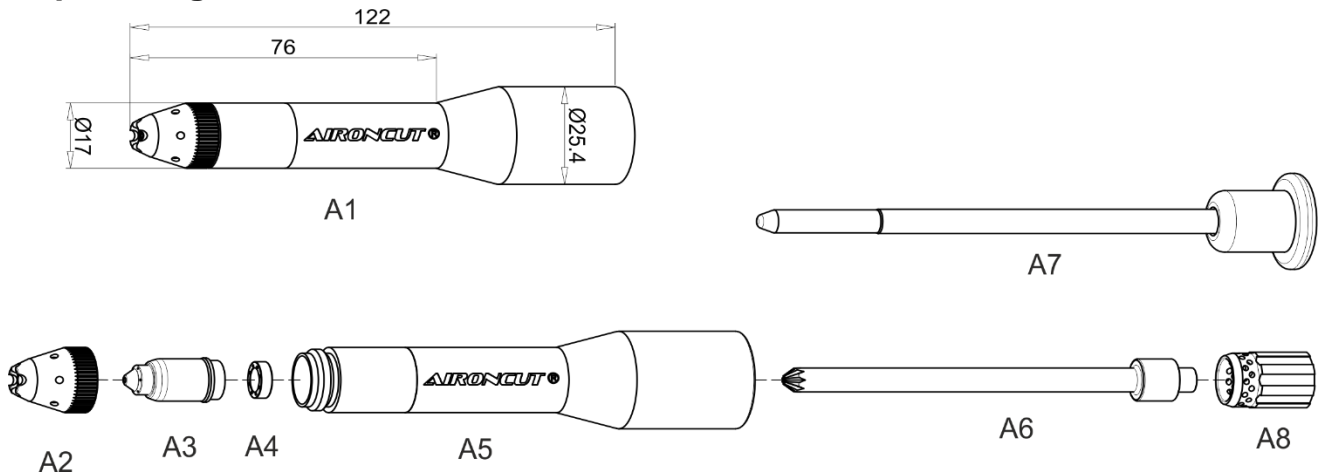


Fig. 9 Super long nozzle - consumable parts

Torch consumables (see Fig. 6)		
A1	7174	Complete set super long 70A SVH-125
A2	7166	Nozzle 20-70A
A3	7163	Cutting tip 15-30A
	7164	Cutting tip 45A
	7165	Cutting tip 70A
A4	7162	Ring A SVH
A5	7173	Nozzle super long body
A6	7172	Super long electrode
A8	5967	Diffuser 45-85A (pack 2)

## Bevel Tools and Circle cutting

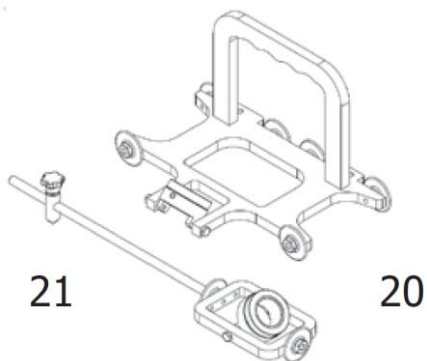
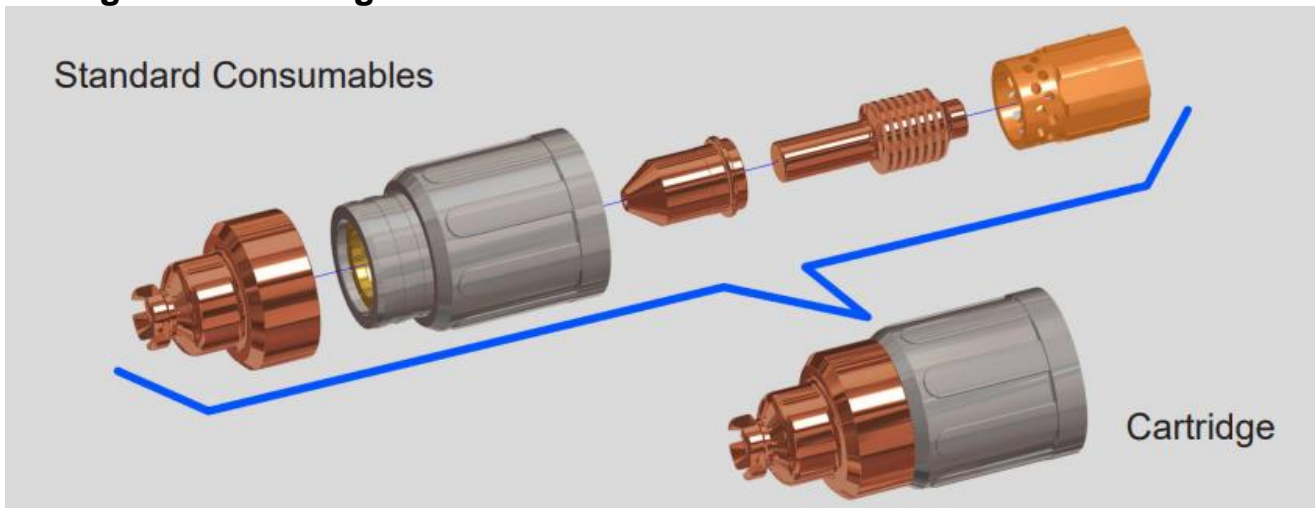



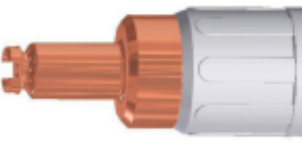


Fig. 10 Bevel Tools and circle cutting

20	5872	Bevel tools
21	7175	Circle cutting - set SVH-105,125

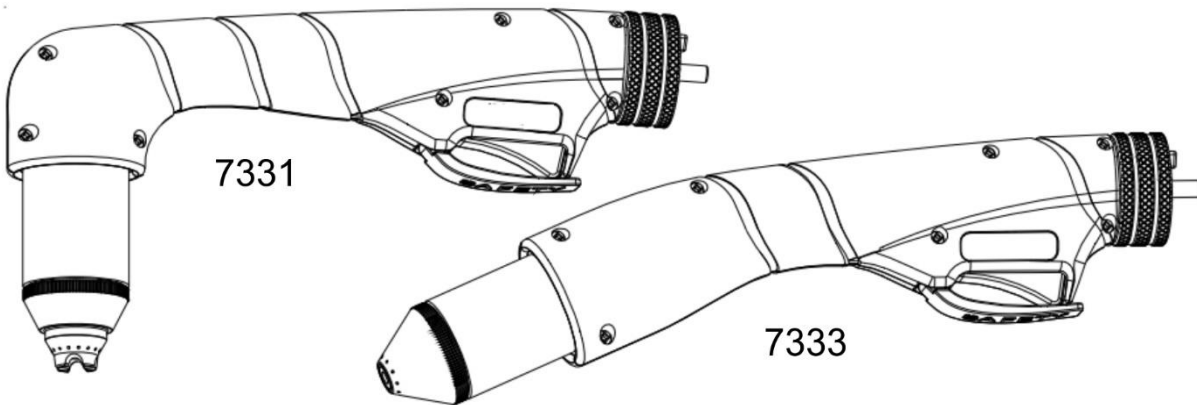


## Single-use Cartridge

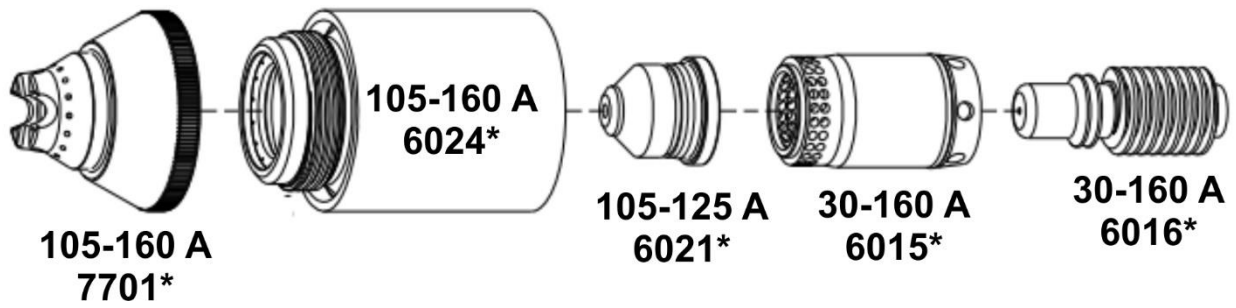


	7350	Cartridge SVH-125 45A
	7351	Cartridge SVH-125 65A
	7352	Cartridge SVH-125 85A
	7353	Cartridge SVH-125 105A
	7354	Cartridge SVH-125 125A
	7363	Cartridge extended SVH-125 45A
	7364	Cartridge extended SVH-125 65A
	7365	Cartridge extended SVH-125 85A
	7366	Cartridge extended SVH-125 105A
	7367	Cartridge extended SVH-125 125A
	7360	Cartridge gouging SVH-125 65/85A
	7361	Cartridge gouging SVH-125 105A
	7362	Cartridge gouging SVH-125 125A
	7368	Cartridge SVH-125 40/70A FLATCUT
	7369	Cartridge SVH-125 80/1250A FLATCUT

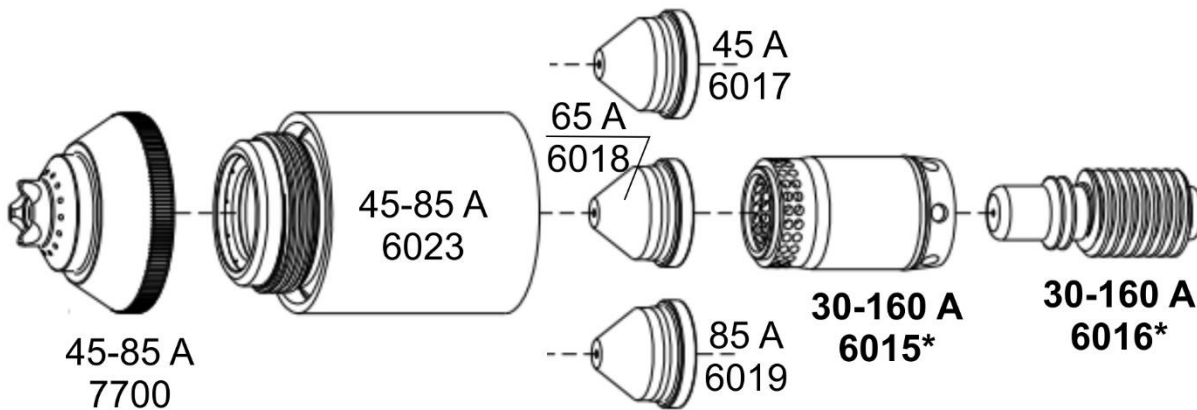
**SVH-160 torch (DZ 100% = 125 A)**



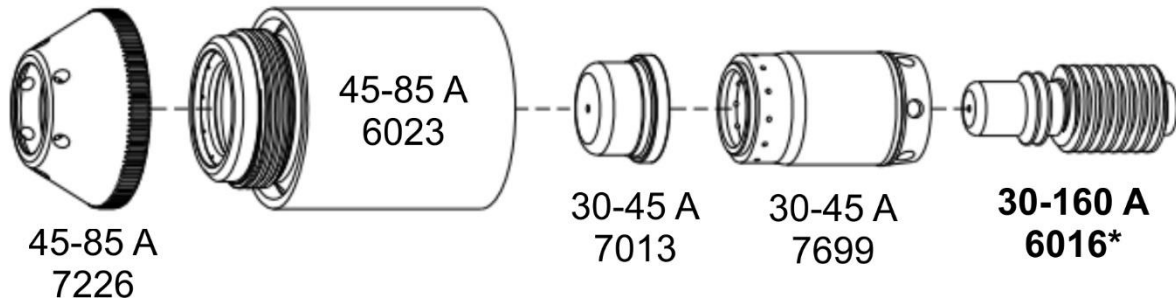
**CONSUMABLE PARTS 105-125 A**



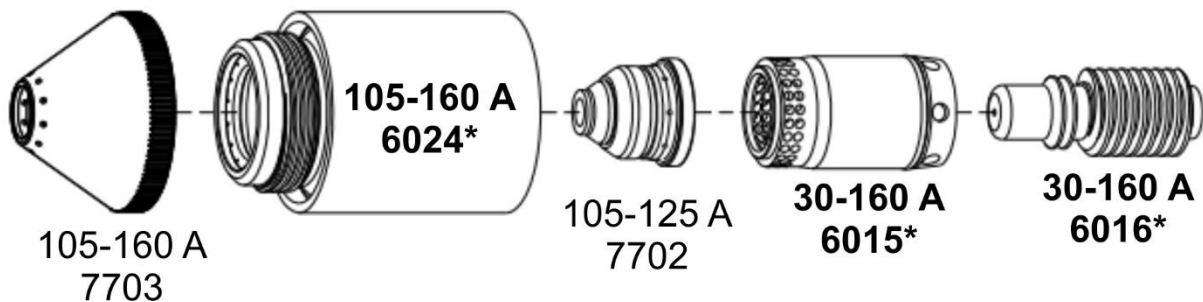
**CONSUMABLE PARTS 45-85 A**



## CONSUMABLE PARTS PRECISION CUT 45 A



## GROOVING CONSUMABLES 105-125 A



## START kit for SVH-160 torch


7332	START kit for SVH-160 torch	Number of
7700	Machine nozzle 45-85 A	1
6023	Nozzle body 45-85A	1
6017	Cutting tip 45A	2
6018	Cutting tip 65A	2
6019	Cutting tip 85A	2
6021	Cutting tip 105-125A	4
6016	Electrode	10

## 8. COMMISSIONING THE MACHINE

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

 **Caution**  **The machine may only be operated by properly trained persons.**

1. Before starting work, the machine must be connected to a network that meets the requirements specified in the technical data.
2. Check the completeness of the cutting torch.
3. Fit the torch and turn the nut clockwise to secure the torch securely.
4. Connect the **A7** network cable to the network according to the parameters in chapter 4. **TECHNICAL DATA**.

5. Use the quick connectors to connect the compressed air to the **A6** connector on the back of the machine.
6. Set the pressure with encoder **V1** to 5.5 bar for cutting and 4.8 bar for grooving.
7. When the **A8** main switch is turned on, the display lights up.
8. Connect the earth cable to the quick coupler **A1** and the cut material pliers.
9. Check the inlet air pressure and adjust if necessary. It must not be higher than 8.5 bar and not lower than 6.5 bar.
10. Set the potentiometer of the cutting current size control to the value corresponding to the material to be cut.
11. Depending on the selected cutting stream size, set the torch with the appropriate cutting tip diameter.
12. Press the button on the torch handle, the pre-blowing starts for 1 s.
13. Pilot arc ignites.
14. Move the torch to the material, the pilot arc turns into a cutting arc. If you do not start cutting within two seconds, the arc will go out. If the torch is moved away from the material while cutting, the arc will go out. If the machine is in the gap material cutting mode - see the corresponding **V5** icon  on the control panel, the cutting arc will change to a pilot arc and if you do not start cutting within 2 seconds, this arc will go out.
15. Stop cutting by releasing the button on the torch handle.

## 9. HAND CUTTING

1. Pressing the torch button ignites the pilot arc. The torch must then be immediately attached to the material to be cut. At this point, the main arc between the torch and the material being cut starts to burn.
2. It is necessary to move the torch at a uniform speed by pulling the nozzle directly over the material, its value depends on the thickness and type of material to be cut and the size of the cutting current. We recommend to test first.
3. Metal cutting can be carried out in all possible positions (horizontal, horizontal, overhead, vertical ascending and descending and also across in the above positions) if the appropriate parameters are selected, however, if possible, a horizontal cut is preferred. In other positions, the operator is at increased risk from flying droplets of molten material.
4. If possible, we recommend starting at the edge of the material. In case you are cutting a hole or need to start from the centre of the material, tilt the torch head slightly and gradually straighten it to a vertical position so that the spraying material does not block the cutting tip, (see Fig. 11) This working procedure must always be followed if the thickness of the material to be cut exceeds 3 mm.
5. If the cut is made in a corner or angle (see Fig. 12), we recommend using an extended electrode and cutting tip. However, the lower cutting power compared to the short version must be taken into account.

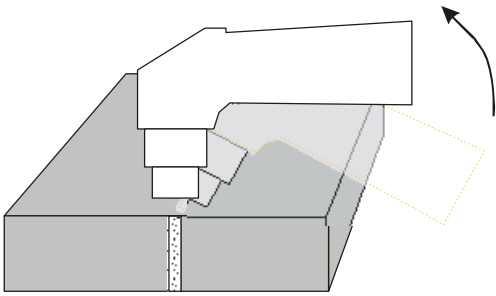


Fig. 11 Lateral start

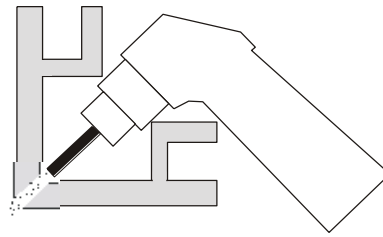


Fig. 12 Cutting in the corner

### Important rules

1. The burning time of the pilot arc must be limited to the necessary time only. This reduces wear on the cutting tip and electrode. Frequent idle starts will stress the cutting tip and electrode and could overheat the pilot arc ballast.
2. When you have finished cutting, never switch off the machine immediately with the main switch, but always allow the torch to run through a cooling cycle. Only switch off immediately in an emergency.
3. The air pressure has a decisive influence on the quality of the cut, the lifetime of the cutting tips, electrodes and the entire torch. Make sure that the pressure is set correctly: the optimum value is 5.5 bar (4.8 bar for grooving), fluctuations between 5.0 and 6.0 bar are permissible. The air must be free of mechanical impurities, oil and water condensate. These impurities reduce the quality of the cut, cause instability and arc extinction and can damage the torch. The source of pressurised air must therefore be equipped with an efficient filtration and a reliable oil and water condensate separator. The use of the filter and separator built into the SVAROG 125 PLASMA as the only air treatment stage is totally inadequate. In cases where the compressor draws in air with high humidity, which results in the need for frequent depressurization of the pressure vessel, it is necessary to include another efficient separator as a 3rd stage in the supply. Trapped condensate must be drained daily from all separators and the compressor pressure vessel.
4. Ensure good electrical contact between the grounding pliers and the material.
5. The cutting tip and electrode need to be checked and replaced in time. The service life of these parts is only a few hours of cutting time and is heavily dependent on following the correct cutting principles.

### 👉 Notice 👈

1. If the air pressure is low, the **E13** light on the control panel will illuminate and block further operation.
2. If the machine overheats during cutting, the error message **E02** on the control panel lights up and blocks further operation.
3. Unplug the machine from the mains before replacing torch parts.
4. Disconnect the machine from the mains before any intervention inside the machine.
5. The machine is adapted for the use of the Plasma SVH-105 torch. In this combination, it forms a safe system in accordance with EN 60974-7 Article

## 10.1.4.

6. The SVAROG 125 PLASMA must not be directly connected to a pressure source of more than 8.5 bar or to cylinders! Connection to such sources is only possible via a suitable pressure reducing valve that is tested for the appropriate inlet pressure and flow.
7. Imperfect trapping of the condensate will cause it to discharge in the torch cutting tip area and prevent the pilot arc from igniting.

## Causes of poor quality cuts

### Insufficient cut penetration

1. High cutting speed (make sure that the inclination of the penetrating cutting arc does not exceed approx. 15° (see Fig. 13).
2. High cutting tip or electrode wear (see Fig. 14).
3. Large material thickness and improperly selected cutting current and cutting tip diameter.
4. Poor electrical contact between the grounding clamp and the material.

### Notice

If the cutting arc does not penetrate the material perfectly, the splashing material clogs the torch cutting tip and reduces its service life.

### The cutting arc is unstable, goes out and "shoots"

1. Worn cutting tip or electrode
2. High air pressure
3. Polluted air
4. Uncaptured water condensate

### Notice

An unstable arc causes very intense interference that can cause the machine control system to collapse or endanger surrounding equipment!

### Conical cut

1. If a crooked incision occurs (see Fig. 15), switch off the machine, release the shield cup and rotate the cutting tip by about 1/4 and try cutting again.
2. Damaged cutting tip and electrode.
3. The position of the torch is not perpendicular to the material
4. Large distance of the torch from the material
5. Worn electrode or cutting tip

### Notice

If the electrode is burnt deeper than 1.5mm, it must be replaced.



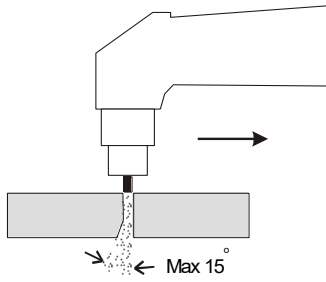


Fig. 13

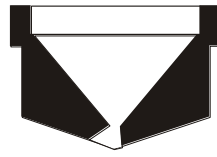


Fig. 14



Fig. 15

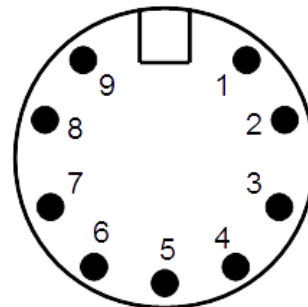
## 10. MACHINE CNC CUTTING

See Appendices

1. Plasma SVS-160 machine torch - cutting data EN
2. Plasma SVS-125 machine torch - cutting data EN
3. Plasma SVS-105 machine torch - cutting data EN

## 11. TORCH WIRING DIAGRAM

PIN NO.	HORACK
1	Torch switch
2	Torch switch
3	Machine/manual torch
4	/
5	Pilot arc
6	Pilot arc
7	/
8	Security
9	Security





## 12. MAINTENANCE

1. Great care must be taken with the torch. When cutting the material, it blasts off molten material that contaminates the inside of the torch. The plasma torch should be maintained regularly and worn parts should be replaced in time. Regularly check the condition of the diffuser channels (see torch drawing). If they are dirty, they must be purged or the diffuser replaced. Poor condition of this part has a negative effect on the cutting quality and causes very strong interference that can cause the machine control electronics to crash or affect surrounding equipment. If the torch cable is damaged, it must be replaced



immediately - there is a risk of electric shock!

2. The maintenance of the pneumatic system consists in regular draining of the trapped condensate, at least once a day during continuous operation. Furthermore, visually check the degree of contamination of the air filter and dismantle and clean it as necessary.
3. Working pressure setting - when cutting, the pressure must not fall below 5.0 bar (4.8 bar for grooving). Setting the desired value is done by means of the control head on the pressure regulator. The head must first be unlocked by pulling upwards, set the desired pressure and locked by pushing it in again. If the machine is not removing any air, the pressure will increase slightly (approx. 1 bar). It is therefore necessary to check or adjust the pressure value during cutting or in the air flow adjustment mode.
4. The source cabinet must be blown out with compressed air periodically according to the level of environmental dustiness.





 **Caution**  Beware of the risk of damage to electronic components from a direct hit of compressed air from a short distance.



### OPERATIONAL SAFETY CHECK ACCORDING TO EN 60 971-1

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

## 13. ERROR MESSAGES

Error messages are shown on the machine display. At the same time, a QR code is shown on the display to open the error message legend on mobile phones.

Error code	Symbol	Fault / Solution procedure
E01	QR code	Overload of the power module. Call service +420 563 034 626.
E02		Overheating. Stop cutting and let the machine cool down.
E03		Defective MUR diode module; defective IGBT block; defective driver or wiring. Call service +420 563 034 626.
E04		The pilot's arc of inflammation hasn't taken place. Check consumables.
E05		The consumables in the torch did not separate during ignition, probably due to jamming. Check the consumables.
E06	QR code	No PFC connected. Call service +420 563 034 626.
E07	QR code	The mains voltage is above 460 V AC. Have the

		power supply checked.
E08	QR code	The mains voltage is below 340 V AC. Have the power supply checked.
E09	QR code	Phase failure. Have the power checked.
E11		Incorrectly assembled torch consumable parts. Correct it.
E13		Low outlet pressure (below 2.7 bar) or no inlet pressure. Check the air supply.
E14	QR code	The torch button was pressed at start-up. It is necessary to restart the machine.

## 14. SERVICE

### Provision of a guarantee

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 in the obligation to remedy the defect free of charge by the manufacturer of the machine or a service organization authorized by the manufacturer.
3. The warranty period of the machine is 24 months from the sale to the buyer. The warranty period starts on the date of handover of the machine to the buyer or on the date of possible delivery. The warranty period does not include the period from the time a legitimate claim is made until the machine is repaired.
4. The warranty period of the torch is 6 months.
5. It is a condition of the warranty that the cutting machine is used in the appropriate 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 set out 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 original manufacturer's parts must be used when maintaining the machine.
6. Compliance with all compressed air quality requirements, compliance with the prescribed filtration and condensate collection method is a condition for the torch warranty to be valid. The plasma cutter must be connected via a filter,  
whose parameters are specified in the operating instructions. Furthermore, faults caused by insufficient compressor performance, penetration of

lubricating oil into the compressed air and electrical breakdowns caused by the presence of moisture in the torch cannot be accepted.

7. It is a condition of the warranty that the cutting machine is used only with the torch specified in this manual.
8. During the warranty period, no modifications or changes to the machine that may affect the functionality of individual machine components are permitted.
9. Warranty claims must be made immediately after discovery of a manufacturing defect or material defect and must be filed with the manufacturer or dealer.
10. If a defective part is replaced during warranty repair, ownership of the defective part passes to the manufacturer.
11. The warranty certificate is the proof of purchase (invoice) with the serial number of the product or the warranty certificate on the last page of this manual.

### **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: [servis@alfain.eu](mailto:servis@alfain.eu) or by phone +420 563 034 626. The service hours are from 7:00 a.m. to 3:30 p.m. every working day.

## 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 in accompanying documents means that used electrical and electronic products must not be added to normal municipal waste.

The equipment must be disposed of at separate collection and take-back points of the company. 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:

To dispose of electrical and electronic equipment, ask your dealer or supplier for the necessary information.

## 16. WARRANTY LIST

The warranty certificate is the proof of purchase (invoice) on which the serial number of the product is indicated, or the warranty certificate below filled in by the authorised dealer.

Production number:	
Day, month and year of sale (in words):	
Stamp and signature of the seller:	