

## WELDING HELMET THE AIR SUPPLY SYSTEM



**901X**

**THE AIR SUPPLY**



## WELDING EQUIPMENT SUITABLE FOR TODAY'S NEEDS

### **Thank you for purchasing our product!**

You have made a right choice. Plasma welding and welding processes are carried out in difficult conditions that expose welding equipment to extreme tests of its strength. Only high quality equipment can ensure required reliability and performance during realization of the above-mentioned processes. SPARTUS® products are characterized by precisely such features: they are primarily reliable and durable, but they are also versatile. We listen carefully to clients' needs. Therefore, our offer covers such a wide assortment of products. Thank you very much for your trust in our company. We would like to invite you to familiarize yourself with the remaining products and offer at [www.spartus.info](http://www.spartus.info) or directly at a local distributor of SPARTUS® products.

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### IMPORTANT!

*Before using this product, read the instruction manual in its entirety, with understanding. Keep the instructions for quick reference to it if necessary. Pay special attention to safety instructions provided for your protection. In the event of any points of misunderstanding instructions, contact your supplier or supervisor.*

## 1. SAFE USE

Arc welding and plasma cutting are processes that can pose hazards for the operator and persons in his vicinity. The operator and his close surroundings are exposed, among others, to the risk of fire, explosion, electric shock, burning, as well as the risk of getting injured by moving parts of the device.

Once proper safety measures are provided, electric welding and plasma cutting are relatively safe processes. For this reason, it is crucial to strictly follow the valid OSH principles during welding operations.

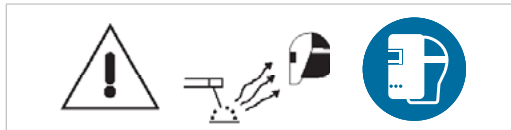
The information provided below does not release the operator from the obligation to follow the OSH rules that are binding in his plant/workplace.

Only professionally trained and qualified personnel may install, operate, maintain and repair the device.

For operators and their supervisors training is essential in: the safe use of the equipment; the processes; the emergency procedures.

### 1.1 WELDING ARC RADIATION CAN BE DANGEROUS

In order for maximum user safety we would like to remind the rules limiting the risks arising from radiation emitted by the welding arc.



The arc generates:

- ultraviolet radiation (*can damage skin and eyes*),
- visible light (*can dazzle eyes and impair vision*),
- infrared (*heat*) radiation (*can damage skin and eyes*).

Such radiation can be direct or reflected from surfaces such as bright metals and light coloured objects.

#### 1.1.1 Eye and face protection

- Use welder's helmet/shield with an appropriate filter to protect you face and eyes against sparks and welding arc radiation.
- Welding helmet/shield should prevent injuries from flying particles, e.g. slag, fragments from grinding or wire bristles, etc.
- Welding helmet/shield should be made in accordance with applicable standards.

#### 1.1.2. Body protection

- The body should be protected by suitable clothing in accordance with applicable standards.
- Use appropriate protective clothing made of durable and fire-resistant material, to ensure proper skin protection.
- The use of neck protection can be necessary against reflected radiation.

### 1.1.3. Protection of persons in the vicinity of an arc

- Protect the remaining personnel present in the vicinity of welding works against negative impact of arc radiation and welding splatters. Warn them about the hazard resulting from exposure to the welding arc.
- In the vicinity of an arc, non-reflective curtains or screens should be used to isolate persons from the arc radiation. A warning, e.g. a symbol for eye protection, should refer to the hazard of arc optical radiation.
- Welder's assistants should also wear appropriate protective clothing.

## 1.2. SYMBOLS USED IN INSTRUCTIONS



We use those symbols to pay your attention about important informations.

## 2. CONFORMITY WITH STANDARDS

The SPARTUS® welding helmet is in conformity with the relevant Union harmonization legislation:

**Directive 2016/425/UE**      **PPE**      **Personal protective equipment**

and that the following harmonized standards applied:

**EN 175**      **Personal protection. Equipment for eye and face protection during welding and allied processes**

**EN 379**      **Personal eye-protection. Automatic welding filters**

**CE** marking was placed on the product.

## 3. GENERAL DESCRIPTION

SPARTUS® Pro 901X helmet has been designed to protect welder's eyes and face against the harmful radiation and weld spatters during welding: TIG, MIG/MAG, MMA. Additionally device has a function of grinding.

SPARTUS® helmet is equipped with automatic welding filter with manual protection level adjustment of **the highest optical class 1/1/1/1** and big, active field of vision **100 x 65mm**, which ensures perfect visibility. Built-in 4 sensors ensures maximum filter sensitivity. Filter includes possibility of regulation: filter darkening grade, time of filter brightening, filter sensitivity and TEST function.

Welding helmet has a welding filter lifting module. This increases the field of view to 165 x 72mm, while maintaining eye protection through the outer protective glass.

SPARTUS® Pro 901X welding helmets with air supply system provides clean and dry air to the welder in particularly difficult conditions, with high levels of dust and humidity.

A high level of respiratory protection TH3P is provided by a set of replaceable filters (main HEPA, active carbon pre-filter). The whole is protected by a spark shield. The air supply enables variable adjustment of the airflow speed. The breathing hose is connected for the welding helmet. This ensures comfort and convenience of movement while working.



Power supply	solar cells and lithium battery
Optical class	1
Diffusion of light class	1
Variations in Luminous transmittance class	1
Angle dependency class	1
Test function	✓
Grinding mode	✓

## OTHER

Helmet shell material	poliamid (PA, Nylon)
Mechanical resistance	F wg. EN 175
Headgear	adjustable
Weight	540g
Adjustment knob and switch	outside

The helmets reach the optimal parameters at a temperature of 15-25°C (RT).

## 4.3 USED MARKINGS

### 4.3.1 Welding filter SPARTUS® Pro 901X

Oznaczenie filtra: 4/4-8/9-13 ART 1/1/1/1 EN 379

4	Light shade
/4	The lightest shade ( <i>range I</i> )
-8	The darkest shade ( <i>range I</i> )
/9	The lightest shade ( <i>range II</i> )
-13	The darkest shade ( <i>range II</i> )
ART	Identification
1	Optical class
/1	Diffusion of light class
/1	Variations in Luminous transmittance class
/1	Angle dependency class
EN 379	Number of standard

### 4.3.2 Helmet shell SPARTUS®

Marking: EN 175 F

EN 175	Number of standard
F	Mechanical resistance: medium Energy impact

## 5. OPERATION AND USE



### **WARNING!**

*SPARTUS® welding helmet is intended for professional and industrial applications. Installation and use of the device may only be carried out appropriately trained professionals.*



*Qualified person (def.)*

*A person who has gained the relevant technical education, training took place and / or gained experience to perceive the risk and avoid hazards during use of the product (IEC 60204-1). (IEC 60204-1).*

### 5.1 DESCRIPTION OF CONSTRUCTION



### **WARNING!**

*It is forbidden to make any unauthorized modifications to the welding filter and / or other components of a SPARTUS® welding helmet.*

#### 5.1.1 Automatic welding filter

#### SPARTUS® Pro 901X



- ① Welding/grinding switch
- ② Shade adjustment knob
- ③ Delay time adjustment knob
- ④ Sensitivity adjustment knob
- ⑤ Test button
- ⑥ Battery socket CR2450 3V
- ⑦ Inner polycarbonate filter shield

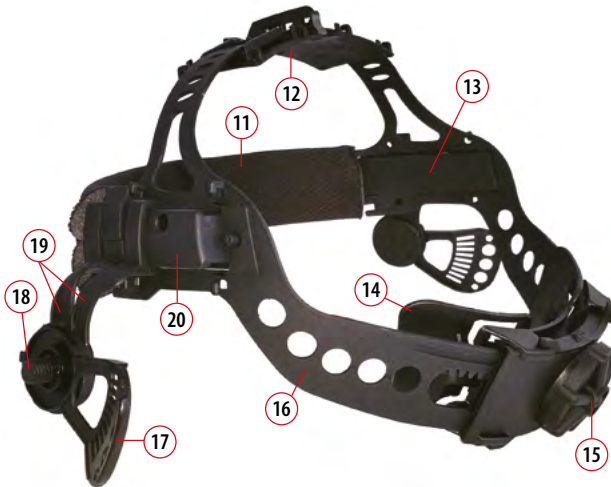


### 5.1.2 Welding helmet SPARTUS®



- ⑧ Welding helmet shell
- ⑨ Outer polycarbonate filter shield
- ⑩ Screw nuts (*headgear*)

### 5.1.3 Headband of SPARTUS® Pro 901X helmet



- |                               |   |
|-------------------------------|---|
| ⑪ Sweatband ( <i>cloth</i> )  | ⑯ Left band & right band                      |
| ⑫ Headband top pad            | ⑰ Angle adjusting shim ( <i>left/right</i> )  |
| ⑬ Front headband              | ⑱ Headband fixing screw ( <i>left/right</i> ) |
| ⑭ Headband back pad           | ⑲ Headband rack ( <i>left/right</i> )         |
| ⑮ Headband regulator assembly | ⑳ Adjusting the distance of the visor         |

## 5.2 USING OF SPARTUS® WELDING HELMET

### WARNING!

Scratched or damaged protection shields (inner and outer) have to be replaced for the new one. Optical sensors must be kept clean. Remember to do not cover them.

### Before first use

(or first use after a short break at work) of welding helmet you should check its technical condition and operation of the welding filter by using the „TEST“ button (5). Next You should check that the shading degree (2) is correct to work carried out and the corresponding mode is enabled operation (1). It is **forbidden** to weld, when the switch (1) is in „GRIND“ position.

### 5.2.1 Working principle (concerns welding filter)

Automatic welding filter switches automatically from light state to dark state upon the welding arc ignition. In light mode the protection degree equals DIN 3.5. The protection degree in dark mode (when exposed to welding arc) equals DIN 4 to DIN 8 or DIN 9 to DIN 13. DIN value in dark mode could be selected manually by the welder. Switching from dark state to light state becomes after welding arc expires.

### 5.2.2 Selecting and adjusting the protection degree

To select and adjust shade number you should use the knob (2). The user can choose between values DIN 4 to DIN 8 or DIN 9 to DIN 13, depending on the selected knob (1) position :

- a) 4 – 8
- b) 9 – 13



## RECOMMENDED SHADING

	Current [A]																			
	1,5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	600
MMA			8					9		10		11		12		13		14		
MAG				8					9	10		11			12			13		14
TIG		8				9		10			11			12		13		14		
MIG heavy metals**					9						10		11		12		13		14	
MIG light alloys						10							11		12		13		14	
electroerosion						10							11		12		13		14	15
plasma cutting					9					10		11		12		13				
microplasma welding	4	5	6	7	8	9					10		11		12					
	1,5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	600

Level of security\* for the process:

\* prepared by SPARTUS® according to EN 379

\*\* term „heavy metals“ applies to steel, steel alloys, copper, copper alloys, etc.

### 5.2.3 Sensitivity and delay adjustment

The sensitivity of the filter is responsible for the welding filter response to changes in light. Before each use, set its value to the maximum. In the sunny rooms or when are multiple light sources may be necessary to reduce the sensitivity of the filter.

The highest sensitivity: knob (4) SENSITIVITY: HIGH.

Delay time is to which when filter passes from the dark state to the light state DIN 4. It is recommended to set this value to maximum.

The maximum delay time: knob (2) DELAY: LONG.

### 5.2.4 Adjusting headgear

Too loose headgear can cause an excessive down slope of the welding helmet. When headgear is too tight can cause excessive pressure on head and consequently causes to discomfort. To adjust the right size of headband (loose or tighten) use the adjustment knob (15).

The headgear should not fall too much on the operator's face. The helmet depth is adjusted using the top strap (12).

### 5.2.5 Adjusting the distance between face and helmet

If the distance between the welder's face and the helmet body is too small, change the distance settings. Headgear has 3 levels of distance regulation. To set right distance from the face use the mechanism (20). Release pin and set the right distance level. Remember that it has to be simetrical regulated on both sides of headgear.

### 5.2.6 Incline angle adjustment

An inappropriate angle of inclination may cause discomfort during operation or cause the visor to move over the head of the operator when tilting the head.

Incline angle adjustment can be made by using angle adjusting shim (17) in to both sides.



### 5.2.7 Automatic welding filter lifting system

SPARTUS® Pro 901X helmet has been designed and equipped with a special mechanism for raising and lowering the welding filter. When lifted, the helmet's center of gravity is lower and coincides with the head's center of gravity. This reduces the welder's neck tiredness and significantly increases his comfort of work. The field of view also increases – 165x72mm, and the welder's eyes are protected by a protective glass.

*Warning! The lever should be adjusted simultaneously with two hands – up (when lifting) and down (when lowering).*



### 5.2.8 Turning on the grind mode

SPARTUS® Pro 901X helmets have a grinding function. When grinding please choose the switch **1** into GRIND position.

In SPARTUS® Pro 901X model it is also possible to lift the automatic welding filter with special levers. We get a larger field of view – 165x72mm, while maintaining eye protection through an external protective glass.

## 6. MAINTENANCE



*Maintenance and repair work may be performed only by qualified personnel with the appropriate permissions. Regular maintenance provides adequate service life and trouble-free operation of the welding helmet.*

### Daily: (before use/installation):

- Perform visual inspection of the helmet, knobs, welding filter.
- Check for proper operation of welding filter using TEST button **5**.
- Visually inspect the technical condition of the outer guard and the inner guard. Worn or damaged covers should be replaced by a new one.
- Visually inspect the technical condition of the optical sensors.

### At least once a month:

- Visually inspect the sweatband. When worn replace by a new one.

### Once a year:

- Replace the battery that powers the welding filter.

## 6.1 REPLACING THE FILTER COVERS

Regular replacement of the filter welding shield is needed to do the correct operation of the helmet. Excessively worn or damaged filter covers must be replaced by a new one.

### 6.1.1 Replacing outer filter cover

#### SPARTUS® Pro 901X

**Krok 1:** Unlock the latch on both sides of the glass.

**Krok 2:** Remove the used protective glass.

**Krok 3:** Install a brand new protective glass by pushing it into the appropriate latches on both sides of the helmet.

### 6.1.2 Replacing inner filter cover SPARTUS® Pro 901X

**Step 1:** Loosen the screws on the handle filter cover **x**, **z** and unlock the mounting bracket.

**Step 2:** Replace protective plate for the new one.

**Step 3:** Place the mounting cover and tighten screws.

## 6.2 CHANGING BATTERY IN THE HELMET

Use lithium batteries CR2450 3V.



## 6.3 CLEANING INSTRUCTIONS

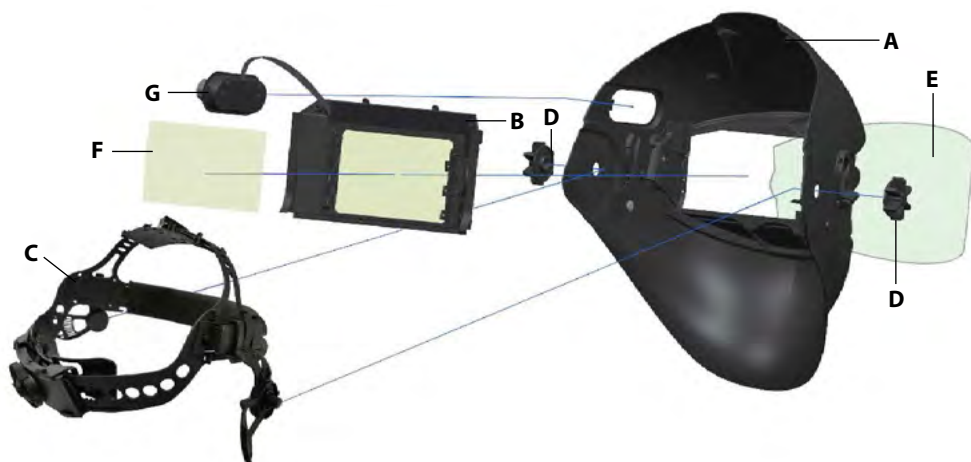
Clean the welding filter and protection/cover plates with lint-free tissue or cloth. Do not immerse in water or spray directly with liquids.

## 7. LIST OF SPARE PARTS OF HELMETS

### WARNING!

*Use only original parts of the helmet, supplied by an authorized retailer or an authorized service. Unauthorized modifications and spare parts can expose the user to the risk of injury.*

### 7.1 SPARTUS® Pro 901X HELMET



- A Helmet shell
- B Auto darkening filter
- C Complete headband
- D Headband knob

- E Front cover lens
- F Inside cover lens
- G External filter adjustment

## 8. THE AIR SUPPLY SYSTEM FOR HELMETS SPARTUS® Pro

### 8.1 GENERAL INFORMATION

SPARTUS® The Air Supply System is intended to protect the respiratory tract of the welder during his work. The Air Supply System is delivered in a complete set, ready to use, which includes:

- SPARTUS® Pro 901X automatic welding helmet
- the air supply
- air hose with protective sleeve
- spark shield
- HEPA main filter
- active carbon pre-filter
- lithium-ion battery
- charger with replaceable tips
- bag

### 8.2 CONFORMITY WITH STANDARDS

The SPARTUS® Air Supply System with helmet is intended for the protection of the respiratory tract as well as eyes and face. It is in conformity with the relevant Union harmonization legislation:

**Directive 2016/425/UE**      **PPE**      **Personal protective equipment**

and that the following harmonized standards applied:

**IEC 175**      **Personal protection – Equipment for eye and face protection during welding and allied processes**

**IEC 379**      **Personal eye-protection – Automatic welding filters**

**IEC 12941**      **Respiratory protection equipment – Cleansing equipment with forced air flow equipped with a helmet or hood**

The Air Supply is a powered air purifying respirator (PAPR) for protection against dust and particles. This system is **TH3P** certified in accordance with European standard EN12941: 1998/A 1:2003/A2:2008 TH3P R SL.

## 8.3 TECHNICAL SPECIFICATIONS

Variable air supply speed control [l/min]	level 1: min. 180	level 2: min. 220
Operating time (h)	level 1: 10	level 2: 9
Battery type	longlife, lithium-ion	
Charging cycles	>500	
Charging time (h)	2.5	
Noise level max. (dB)	60	
Indicator light	vibration-acoustic alarm system, when air supply failed	
Length / air hose dimensions	850 x 1200mm including plug / ø36mm	

## 8.4 OPERATION AND USE

### 8.4.1 Construction description

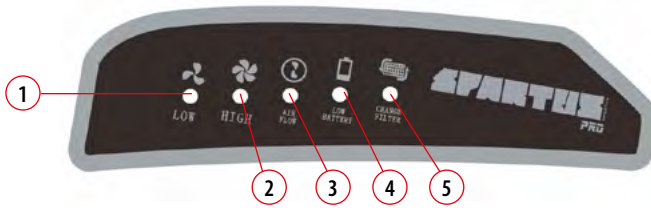
#### 8.4.1.1 The air supply



- |   |                            |
|---|----------------------------|
| ① Air hose  | ⑥ Cover                    |
| ② Waist belt                                      | ⑦ Lithium-ion battery      |
| ③ Control panel                                   | ⑧ HEPA filter              |
| ④ Air outlet                                      | ⑨ Active carbon pre-filter |
| ⑤ Switch on/off and choice of air flow regulation | ⑩ Spark shield             |



### 8.4.1.2 Control panel

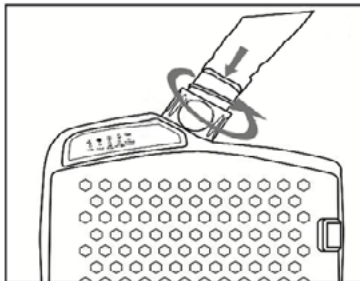


- ① Indicator light – level air flow 180l/min
- ② Indicator light – level air flow 220l/min
- ③ Indicator light – low air flow
- ④ Indicator light – low battery
- ⑤ Indicator light – filter replacement necessary

### 8.4.2 Starting the air supply system

**! Before every use, ensure that the air supply is in a faultless condition!**

1. Ensure that the master filter and the pre filter is properly installed and the cover is securely fitted (cover has to close with a clicking sound).
2. Check the air hose and air connector for damage (holes, tears, cuts). Connect the air hose to the helmet and blower by inserting the male bayonet fitting into the female coupling and lock by twisting the fitting until it locks. Ensure that the male fittings have an O-Ring seal in place.



3. Switch on The Air Supply by pressing the on button for about 1 second. During the start up of around 3 seconds all 5 LEDs will light up are switched on and an audible alarm (3 beeps) will sound. Afterwards The Air Supply is ready for use.
4. In addition, during this start up time the air supply performs an initial self-. If the red filter LED turns off after the before-mentioned 3 seconds, a flow of at least 180l/min is maintained. Due to an in-built flow sensor the air supply controls and continuously maintains a correct flow above 180l/min during the entire operation.

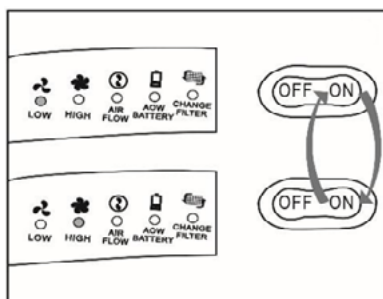
5. As mentioned the air supply has a visible and audible warnings for low battery, blocked filter or reduced airflow. **If a warning is triggered, leave the working area immediately!**

### 8.4.3 Adjusting the belt size

Put the belt on and adjust the size so that the blower unit sits comfortably on your hips/waist.

### 8.4.4 Flow adjustment

The blower has two air flow levels: 180l/min and 220l/min. To change the air flow level press the on button ON until your requested air flow level is reached.



### 8.4.5 Battery

On delivery the battery is not fully charged. Charge the battery completely before first usage. The battery is a consumable part and is subject to wear during normal use. When the operating time of the device is too short, replace the battery with a new one and recycle the old one.

The battery shows good durability, its life span is estimated at 500 charging cycles, provided that the charging procedure is followed. Obey the rules:

- charging the battery to full charge,
- use a dedicated charger (using the wrong device may damage the charger and battery).

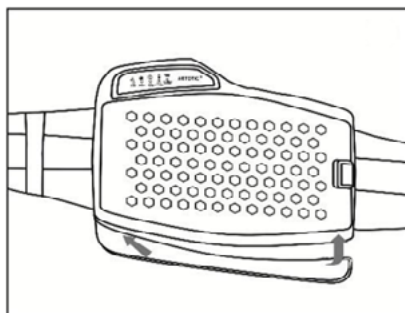
The batteries can be charged when it is installed in the supply air system and also when it is removed. The charging time is about 2,5 hours, while the nominal working time is up to 10 hours (*Remember, the working time depends on many factors: e.g. battery consumption, filter clogging, air flow level and temperature*).

#### **WARNING!**

*The battery should not be discharged completely, it may cause permanent damage. Remember to use caution when charging. Do not expose the battery to direct sunlight or high temperatures.*

#### 8.4.5.1 Installing the battery

The battery has to be inserted and clipped into the locating slot on the bottom left side of the Air Supply. Slide and push the battery until a click is heard.



#### 8.4.5.2 Removing the battery

Press the retaining button on the bottom right side and pull it out until it is completely removed from the blower unit.

#### 8.4.5.3 Charging the battery

The charger has been equipped with a system of variable plugs for the socket (4 pieces: UK, SAA, USA and EU). Supports supply voltages from 100 to 240V AC 50/60Hz  $\pm$  10%.

1. Check what type of outlet is present in your power supply installation.
2. Choose the right plug and make sure that the electrical connection meets the charger specifications.
3. To change to an alternative plug, press the button „PUSH“ and pull the plug away in the opposite direction from the cord. Insert the appropriate plug until the clip snaps into place.
4. Connect the battery to the charger. The charging process is signalled by the yellow illuminated LED on the charger. After charging has been completed, the LED turns green and the trickle charging mode is activated.

#### SAFETY INSTRUCTIONS:

1. Use the charger only with recommended batteries.  
(*You cannot charge any battery with any charger*).
2. Batteries should be charged at room temperature from 10°C to 30°C.
3. It is forbidden:
  - a. using a charger outside the building,
  - b. exposing the charger to high temperatures,
  - c. storing the charger in humid conditions,
  - d. cover the charger during operation,
  - e. charging the battery repeatedly without first discharging it,
  - f. opening / dismantling the charger (except for the socket plug change described in the manual),
  - g. using the charger in an explosive and / or potentially explosive atmosphere,
  - h. installation of a charger to an electric network that does not meet the specified parameters.
4. It is recommended not to leave the charger switched on without a load.
5. Remember that any electrical device should not be operated unattended.

#### 8.4.6 Alarm system

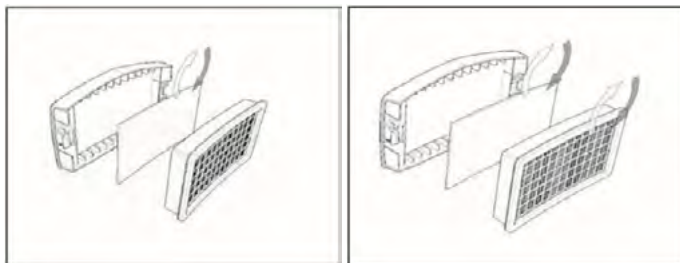
Periodically check the low airflow alarm to check its functionality. This test should be carried out with a fully charged battery and unblocked filter and hose in a clean area. To test the alarm switch the unit on disconnect the hose from the welding helmet and place the palm of the hand over hose. Within 15 seconds the alarm will sound and the red Air Flow LED will illuminate. Immediately remove your hand from the hose. The alarm will automatically switch off. Reconnect the hose to the helmet.

## 8.5 MAINTENANCE

Check the Welding Helmet regularly and automatic welding filter. Check the face seal and the air nozzle for holes, cracks or other damage. Do not use the system until all worn or damaged parts have been replaced.

### 8.5.1 Master filter and pre filter replacement

In case of a filter alarm indication please replace the prefilter. Please monitor the time between filter alarms. If you feel the replacement interval becomes too short, which is at user's discretion, you are then recommended to replace the master filter and the pre filter.



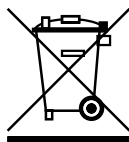
### 8.5.2 Cleaning

Using a clean cloth moistened with soapy water, clean the blower, the air hose and the safety helmet. Leave the unit to dry at room temperature. Do not use strong detergents, solvents, alcohol or cleaning agents containing abrasives. The face seal is washable (hand wash, do not spin).

## 8.6 LIST OF SPARE PARTS

LP.	CODE	DESCRIPTION
1	080-15-001	HEPA main filter
2	080-15-003	Spark shield
3	080-15-004	Active carbon pre-filter
4	080-15-010	Lithium-ion battery

## 9. ENVIRONMENTAL PROTECTION



The product must not be disposed of into an ordinary waste container. It is totally forbidden to dispose of electric or electronic equipment marked with a crossed-out trash can symbol by throwing it into ordinary waste containers. According to the WEEE directive (directive 2012/19/UE), binding within the European Union, such products should be disposed of according to local regulations.

We hereby inform the client that, according to the regulations, each commodity is burdened with waste disposal costs (WDC) according to charging rates valid for a given year.

## 10. TROUBLESHOOTING



*Problems with the operation of the device, are not always an evidence of its failure. You can independently carry out an analysis in search of probable failure. In case of doubt, please contact to SPARTUS® dealer or authorized service center.*

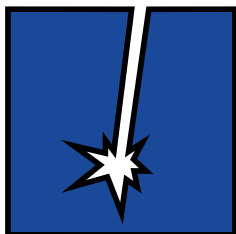


*During the warranty period all repairs should be carried by authorized service center. Repairs carried out by unauthorized persons will void the warranty.*

HELMET	
Filter cannot darkening or flashes	Damaged or dirty front protection plate
	Dirty optic sensors
	Damaged automatic filter
	Worn battery
	Too low sensitivity (see 5.2.3)
Poor visibility	Damaged or dirty front/inner protection plate
	Incorrect setting of the degree of protection (see 5.2.2)
Slow filter reaction	Too low ambient temperature
	Worn battery
The helmet falls from the head	Incorrect adjustment of headgear
THE AIR SUPPLY	
Blower does not start	The battery is installed incorrectly or the battery is fully charged
The LED on which filter needs to be changed	Main filter and pre-filter are incorrectly installed
Battery running time becomes very short	Defective charger or battery (replace and dispose of the used battery in accordance with the national regulations for special waste)

## Notes

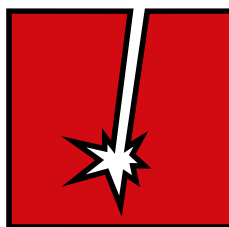
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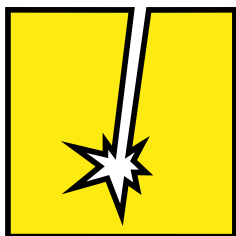
**EASY**

*Simple solutions and an attractive price – these are the features of SPARTUS® Easy series devices. Our equipment has been designed with ease of use and ergonomics at work in mind.*

*A masterly combination of high quality production, excellent parameters and ergonomics – these are features of the SPARTUS® Master series of devices, which were created with demanding welding jobs in mind.*



**MASTER**



**PRO**

*Precision, functionality, excellent parameters and resistance to high workloads – these are the features of the SPARTUS® Pro industrial series of devices. This series consists of specialised solutions which will satisfy even the most demanding users.*



Videopresentation of products



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