

SPARTUS®

WELDING HELMET



101X

201X

301X

401X



User's manual



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 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.

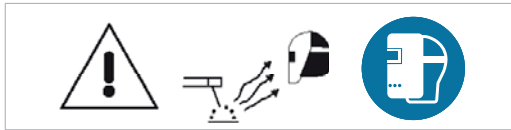
The information provided below does not release the operator from the obligation to follow the OSH rules that are binding in his plant/workplace.

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® helmet has been designed to protect welder's eyes and face against the harmful radiation and weld splatters 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. Built-in 4 sensors ensures maximum filter sensitivity. Filter includes possibility of regulation: filter darkening grade, time of filter brightening and filter sensitivity.

Helmet is made of tough polyamide (Nylon). Adjusted headband enables easy adaptation to welder's needs.

3.1 PURPOSE OF USE

Automatic welding helmets SPARTUS® are designed to protect the face and eyes of the welder, against sparks and welding spatter and against harmful radiation which arises under normal conditions when:

- GMAW gas metal arc welding (MIG/MAG)
- Tungsten inert gas welding (TIG)
- Manual metal arc welding (MMA) (SMAW – shielded metal arc welding)

SPARTUS welding helmet can be also used to protect face and eyes during grinding elements made of metal.

! *It is forbidden to use the helmet SPARTUS® for eye and face protection during welding and gas cutting, welding and laser cutting. The welding helmet does not protect against explosive devices or corrosive liquids. It is forbidden to use misused.*

4. TECHNICAL SPECIFICATIONS

4.1 OPERATION, STORAGE AND TRANSPORT

Conditions during operation, storage and transport

Range of ambient air temperature during operation from -5°C to +50°C
 Range of ambient air temperature during storage and transport from -20°C to +70°C

! *Store and transport packaging protects against mechanical damage to the helmet.*
 • *Do not store or transport, when external and internal covers are taken off.*

4.2 TECHNICAL PARAMETERS OF WELDING HELMET

	Easy 101X	Master 201X	Pro 301X	Pro 401X
Application	arc welding: MMA, TIG, MIG/MAG and grinding			

WELDING FILTER PARAMETERS

Type of welding filter	automatic with manual adjustment degree of protection			
Number of sensors	4			
Active field of view [mm]	98 x 55	100 x 65		100 x 73
Filter size [mm]	110 x 90 x 9	122 x 125 x 9	125 x 135 x 10	122 x 125 x 9
Shading (<i>standby</i>)	DIN 4			DIN 3.5
Variable welding shades (<i>operating</i>)	DIN 9 – 13	DIN 4 – 8 or DIN 9 – 13		
UV/IR protection degree	to DIN 16			
Light to dark switching time [s]	1/25 000	1/30 000		
Delay control light to dark switching time [s]	0.25 – 0.8		0.3 – 0.9	0.25 – 0.85
Sensitivity	infinitely adjustable			
Power supply	solar cells and lithium battery			

Optical class	1		
Diffusion of light class	1		
Variations in Luminous transmittance class	1		
Angle dependency class	2	1	
Test function	✓		
Grinding mode	✓		

OTHER

Helmet shell material	poliamid (PA, Nylon)			
Mechanical resistance	B acc. EN 175			
Headgear	adjustable			
Weight [g]	520	480	490	500
Adjustment knob and switch	outside		inside	

4.3 USED MARKINGS

4.3.1 Welding filter SPARTUS® Easy 101X

Marking: 4/9-13 ART 1/1/1/2 EN 379

4	Light shade
/9	The lightest shade
-13	The darkest shade
ART	Identification
1	Optical class
/1	Diffusion of light class
/1	Variations in Luminous transmittance class
/2	Angle dependency class
EN 379	Number of standard

4.3.2 Welding filter SPARTUS® Master 201X

Marking: 3/4-8/9-13 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

4.3.3 Welding filter SPARTUS® Pro 301X

Marking: 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

4.3.4 Welding filter SPARTUS® Pro 401X

Marking: 3/4-8/9-13 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

4.3.5 Helmet shell SPARTUS®

Marking: EN 175 B

EN 175	Number of standard
B	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

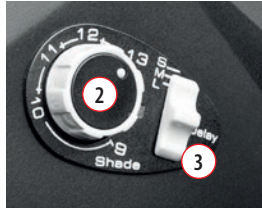


WARNING!

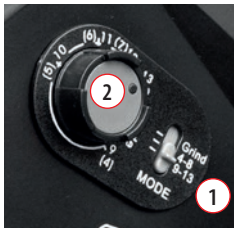
It is forbidden to make any unauthorized modifications to the welding filter and / or other components of a SPARTUS® welding helmet.

5.1.1 Automatic welding filter

SPARTUS® Easy 101X



SPARTUS® Master 201X



SPARTUS® Pro 301X / Pro 401X



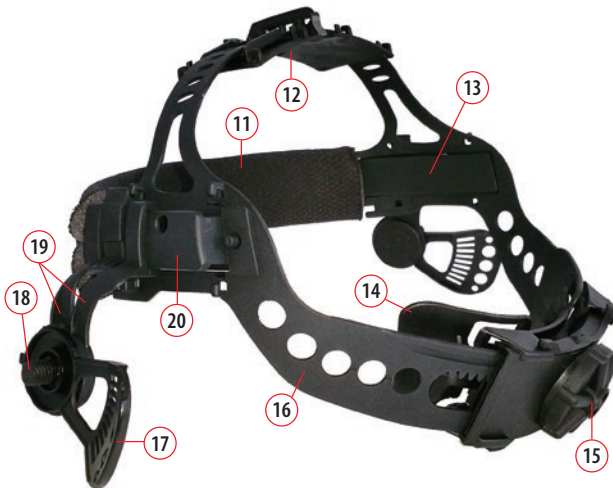
- ① Welding/grinding switch
- ② Shade adjustment knob
- ③ Delay time adjustment knob
- ④ Sensitivity adjustment knob
- ⑤ Test button
- ⑥ Battery socket CR2450 3V
- ⑦ Inner polycarbonate filter shield

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® helmet



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

RECOMMENDED SHADING

		Current [A]																			
		1,5	6	10	15	30	40	60	70	100	125	150	175	200	225	250	300	350	400	450	500
Level of security* for the process:	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
						10							11		12			13		14	
MIG light alloys						10							11		12			13		14	
							10						11		12		13		14		15
electroerosion													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	500	600

* prepared by SPARTUS® according to EN 379

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

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 to DIN 4. 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 :

- for Easy 101X model
 - a) 9 – 13
- for Master 201X, Pro 301X, Pro 401X models
 - a) 4 – 8
 - b) 9 – 13

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 (3) 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 Turning on the grind mode

SPARTUS® helmets have a grinding function. To enable the grinding function, set the switch **1** into GRIND position. The degree of protection for the grinding function is DIN 4.

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:

- You should send welding helmet to an authorized service center for an interim review.
- Replace the battery that powers the welding filter.

6.1 REPLACING THE FILTERS 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

Step 1: Carefully remove the filter cartridge. In order to remove the cartridge from the welding filter gently loosen the locking tabs.

Step 2: Replace protective plate for the new one.

Step 3: Place the filter cassette in welding helmet, and then lock the latch.



6.1.2 Replacement of the internal protective glass

Step 1: Unlock the latch on both sides of the glass (X), (Z).

Step 2: Remove the used protective glass.

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

6.2 CHANGING BATTERY IN THE HELMET

Use lithium batteries CR2450 3V.

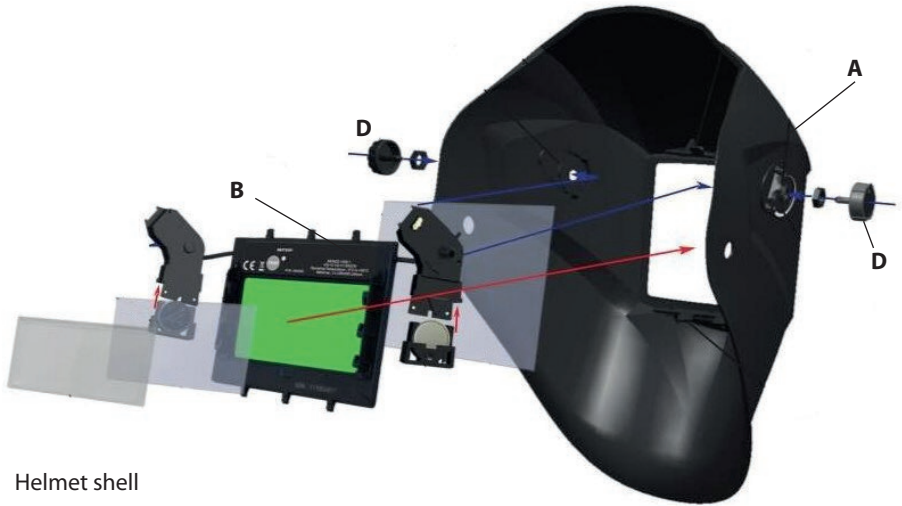
6.3 CLEANING INSTRUCTIONS

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

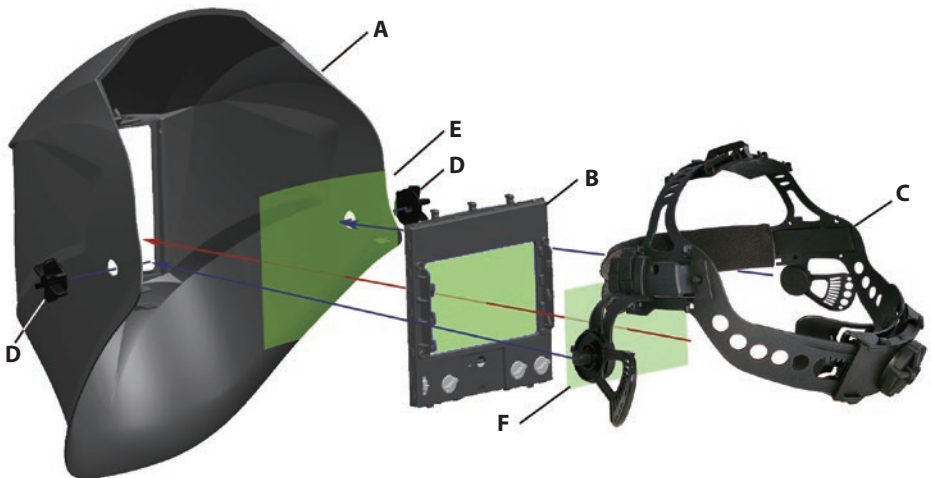
7. LIST OF SPARE PARTS OF HELMETS

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.



- A Helmet shell
- B Auto darkening filter
- C Complete headband
- D Headband knob
- E Front cover lens
- F Inside cover lens



8. 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.

9. 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
Poor visibility	Too low sensitivity (see 5.2.3)
	Damaged or dirty front/inner protection plate
Slow filter reaction	Incorrect setting of the degree of protection (see 5.2.2)
	Too low ambient temperature
	Worn battery
The helmet falls from the head	Incorrect adjustment of headgear

Notes

Notes



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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