

Operating Instructions

_____ Automatic Welding Helmet

_____ VarioProtect XL-W TC



VarioProtect XL-W TC

VARIO PROTECT

Imprint

Product identification

Automatic Welding Helmet Item number
VarioProtect XL-W TC 1651000

Manufacturer

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Indications regarding the operating instructions

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Indications regarding the copyright

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1 Introduction

You have made a good choice by purchasing the Schweisskraft welding helmet.

Read the operating instructions carefully before using the welding helmet.

These provide information on the proper start-up, the intended use and the safe and efficient operation and maintenance of the welding helmet.

The operating manual is an integral part of the welding helmet. They must always be kept at the place of use of the welding helmet. In addition, the local accident prevention regulations and general safety regulations for the area of use of the welding helmet apply.

Illustrations in these operating instructions are for basic understanding and may deviate from the actual design.

1.1 Copyright

The contents of these instructions are protected by copyright and are the sole property of Stürmer Maschinen GmbH. Their use is permitted within the scope of the use of the welding helmet. Any use beyond this is not permitted without the written approval of the manufacturer. Passing on as well as duplication of this document, utilization and communication of its contents are forbidden, as far as not expressly permitted. Violations will result in liability for damages.

We register trademarks, patents and design rights for the protection of our products, patent and design rights, insofar as this is possible in individual cases. We emphatically oppose any infringement of our intellectual property.

1.2 Customer service

Please contact your dealer if you have questions concerning your Automatic Welding Helmet or if you need technical advice. They will help you with specialist information and expert advice.

Germany:

Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Str. 26
D-96103 Hallstadt

Repair service:

Fax: 0049 (0) 951 96555-111
Email: service@stuermer-maschinen.de

Spare part orders:

Fax: 0049 (0) 951 96555-119
Email: ersatzteile@stuermer-maschinen.de

We are always interested in valuable experience and knowledge gained from using the application-which then

could be shared and be valuable to develop our products even further.

1.3 Limitation of liability

All information and notes in these operating instructions were summarised while taking applicable standards and rules, the state-of-the-art technology and our long-term knowledge and experiences into consideration.

In the following cases the manufacturer is not liable for damages:

- Non-observance of the operating instructions,
- Inappropriate use
- Use of untrained staff,
- Unauthorised modifications
- Technical changes,
- Use of not allowed spare parts.

The actual scope of delivery may deviate from the explanations and presentations described here in case of special models, when using additional ordering options or due to latest technical modifications.

The obligations agreed in the delivery contract, the general terms and conditions as well as the delivery conditions of the manufacturer and the legal regulations at the time of the conclusion of the contract are applicable.

2 Safety

This section provides an overview of all important safety packages for the protection of operating personnel as well as for safe and fault-free operation. Other task-based safety notes are included in the paragraphs of the individual phases of life.

2.1 Symbol explanation

Safety instructions

The safety notes in these operating instructions are highlighted by symbols. The safety notes are introduced by signal words which express the concern of the risk.

**DANGER!**

This combination of symbol and signal words indicates an imminently dangerous situation which may lead to death or severe injury if not avoided.

WARNING!

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to death or severe injury if not avoided.

CAUTION!

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to slight or minor injury if not avoided.

ATTENTION

This combination of symbol and signal words indicates a possibly dangerous situation which may lead to property and environmental damages if they are not avoided.

**NOTE!**

This combination of symbol and signal words indicates a potentially dangerous situation which may lead to material or environmental damage if not avoided.

Tips and recommendations**Tips and recommendations**

This symbol highlights useful tips and recommendations as well as information for an efficient and trouble-free operation.

It is necessary to observe the safety notes written in these operating instructions in order to reduce the risk of personal injuries and damages to property.

2.2 Safety regulations**ATTENTION!**

Serious injury can occur if the user ignores the warnings and/or refuses to follow the instructions in the operating manual!

**ATTENTION!**

Before use make sure the protection films on both inside & outside protection lens are removed (if available).

- This welding helmet is not suitable for use in laser welding with gas and/or oxygen and acetylene welding or cutting processes.
- Check the welding helmet for visible damage and defects before use. Repair defects and damage immediately.
- Do not use the welding helmet in wet environments, rain, etc.
- Only use original spare parts and accessories.
- Check the helmet for light transmission
- Never place this welding helmet or filter on a hot surface.
- Protect the filter from dirt.
- Never open the welding filter.
- Before using the welding helmet, make sure that the operating mode is set correctly. - „Welding“ or „Grinding“.
- This welding helmet does not protect you from explosives or corrosive liquids.
- Do not make any changes, not on the welding filter or the welding helmet, unless it is explicitly stated in this manual.
- If the viewing window does not darken immediately after the welding arc is ignited, welding must be stopped immediately. Contact your supervisor or your dealer immediately.
- Do not use any solvents on the window or helmet.
- Only use the welding helmet at temperatures between -5 °C and +50 °C.
- Store the helmet at temperatures between -20 °C and +70 °C.
- Protect the viewing window from liquid and dirt.
- Clean the viewing window regularly and do not use strong cleaning agents.
- Keep the sensors and solar panel clean. Use a clean, lint-free cloth for cleaning.
- Replace the sensors if they are damaged.
- Replace the protective lens regularly or if they are scratched or damaged.
- Set the correct protection level before using the helmet.
- Adjust the headband so that the helmet sits as low as possible on your head and close to your face. Adjust the angle of the helmet in the lowered position by turning the adjustable limiting disc.
- Select the necessary position of the welding/grinding switch before welding.

2.3 Safety data sheets

Safety data sheets for hazardous materials can be obtained from your specialist dealer or by phone: +49 (0)951/96555-0. Specialist dealers can find safety data sheets in the download area of the partner portal.

3 Intended use

The Automatic Welding Helmet VarioProtect XL-W TC is exclusively designed to protect the eyes of welders from harmful radiation in the visible, ultraviolet (UV) and infrared (IR) range during certain arc and gas welding processes, shielded arc welding and plasma cutting, as well as to protect the eyes and face from welding sparks and spatter.

The helmet can also be used for grinding.

The use of the welding helmet for laser welding is prohibited.

Any use other than that described in these operating instructions is not permitted. Intended use also includes compliance with all the information in these instructions. Any use beyond the intended use or any other use is considered misuse.

3.1 Reasonably foreseeable misuse

Any use beyond or different from the intended use is considered misuse.

Possible misuses can be:

- Use in areas with hazardous substances, explosion risk or fire hazard.
- Use of the welding helmet during welding work in the "Grinding" (GRIND) operating mode.
- Failure to observe signs of wear and damage.
- Bypassing or modifying the protective devices.
- Non-observance of the maintenance instructions.
- Installation of spare parts and use of accessories and equipment not approved by the manufacturer.
- Deliberate or careless handling of the Automatic Welding Helmet during operation.

Misuse of the Automatic Welding Helmet can lead to dangerous situations.

Stürmer Maschinen GmbH accepts no liability for design and technical modifications to the Automatic Welding Helmet.

Claims of any kind for damage due to improper use are excluded.

3.2 Residual risks

Even if all safety regulations are observed and the machine is used in accordance with the regulations, there are still residual risks, which are listed below.

- Eye damage if the filter cassette is defective.
- Respiratory damage when inhaling welding fumes due to insufficient extraction.

4 Technical Data

Technical Data	VarioProtect XL-W TC
Dimensions of cassette	110 x 90 x 8 mm
Viewing window (WxH)	100 x 49 mm
Power supply	Solar cells + Replaceable battery
Type of battery	Li-Mn (CR2032)
Class	1/1/1/2
UV/IR-Protection	Permanent DIN 16
Light level	Protection level 4
Dark protection level	DIN 9 - 13
Security level in case of failure	Protection level 4
Reaction time from light to dark	0,1 ms.
Fading time from dark to light	0,15 sec. - 0,8 sec. steplessly adjustable
Sensitivity	steplessly adjustable
Lens power	4,8 mm
Material	Nylon
Working temperature	-5°C - +55°C
Storage temperature	-20°C - +70°C
Dimensions (LxWxH)	238 x 174 x 334 mm
Weight	314 g

5 Description



Fig. 1: Description of the VarioProtect XL-W TC

- 1 Fixing element front viewing window
- 2 Setting protection level/grinding mode (GRIND)
- 3 Headband adjustment and tilting
- 4 Viewing window (SWM 1 F CE)
- 5 Cassette and inner pane
- 6 Marking of the welding helmet („SWM 175 F CE“)
- 7 Battery cover with LED display (LOW BATT.)
- 8 Battery cover with LED display (LOW BATT.)
- 9 Marking of the cassette (4/9-13 SWM 1/1/1/2/3/79 CE)
- 10 Setting the sensitivity (SENSITIVITY)
- 11 Setting the brightening time (DELAY)

5.1 Wearing parts

Description	Item number	Quantities/ price unit	Content
Outer viewing pane	1662155	VPE	10
Inner viewing pane	1662156	VPE	10
Welding helmet housing	1662157	Piece	1
Forehead sweat-band	1662112	Piece	1
Complete head-band	1662102	Piece	1
Battery / Button cell	1662107	Piece	1
Filter cassette	1662158	Piece	1

6 Transport, Packaging, Storage

6.1 Transport

Check the welding helmet on delivery for any visible transportation damage. If you notice any damage to the device please report this immediately to the carrier or dealer.

6.2 Packaging

All used packaging materials and packaging aids are recyclable and should be taken to a materials recycling depot to be disposed of.

The delivery packaging is made of cardboard, so please dispose carefully by having it chopped up and given to the recycling collection

The film is made of polyethylene (PE) and the cushioned parts of polystyrene (PS). Deliver these substances to a collection point for recyclable materials or to the waste disposal company which looks after your region.

6.3 Storage

The welding helmet must be stored thoroughly cleaned in a dry, clean environment at temperatures ranging from -20 °C to +70 °C.

The solar cells of the filter should be stored in the dark or not exposed to light.

7 Product features and Adjustment options

The shape of the helmet relieves the head and neck of the welder, so the user feels more comfortable while working.

Before welding, the filter is transparent and clear, which allows a clear view to the workpiece.

As soon as an arc is ignited, the two photo sensors on the welding filter react and darken the view in less than 0.1 milli-seconds.

As soon as welding is finished, the filter automatically brightens.

At low ambient temperatures, the reaction of the liquid crystal in the automatic welding filter is slower. However, the protective functions are not affected.

The lifetime of the welding helmet depends on various factors, such as usage, cleaning, storage and maintenance. We recommend a usage period of five years with regular inspections and replacement of parts in case of damage.

7.1 Selection of the delay time

When welding is interrupted, the viewing window automatically changes from dark to light, but with a preset delay so that each time the bright light from the afterglow on the workpiece is dimmed. The delay or reaction time can be set between 0.15 and 0.8 seconds as required using the DELAY control on the inside of the helmet.



Fig. 2: Setting the delay time

7.2 Setting the sensitivity

Switching the filter to darkening can be adjusted with the "SENSITIVITY" control on the filter cassette of the helmet. It can be set from low (LO) to high (HI).



Fig. 3: Rotary knob for sensitivity adjustment

Set the sensitivity to the highest position before welding and adjust it accordingly during welding if necessary.



ATTENTION!

Before welding is started, the operating mode switch must be reset to a protection level for welding.

7.3 Setting the protection level range

The protection levels (from DIN9 to DIN13) are selected with the protection level switch on the left outside of the helmet.

The welding filter completely protects the eyes and face of the welder against UV and IR radiation during the welding process, even if the cassette does not darken. The UV/IR protection is always available up to DIN 16. Therefore the user feels safe during welding



Fig. 4: Rotary knob for protection level

Set the protection level before welding using the color table according to the welding method used and the welding current. If the darkening is too strong or too weak, adjust the controller slightly until the welding spot can be seen.



ATTENTION!

If the welding helmet is used with the wrong protection level for a longer period of time, the eyes can be injured.

7.4 Adjustment possibilities of the headbands

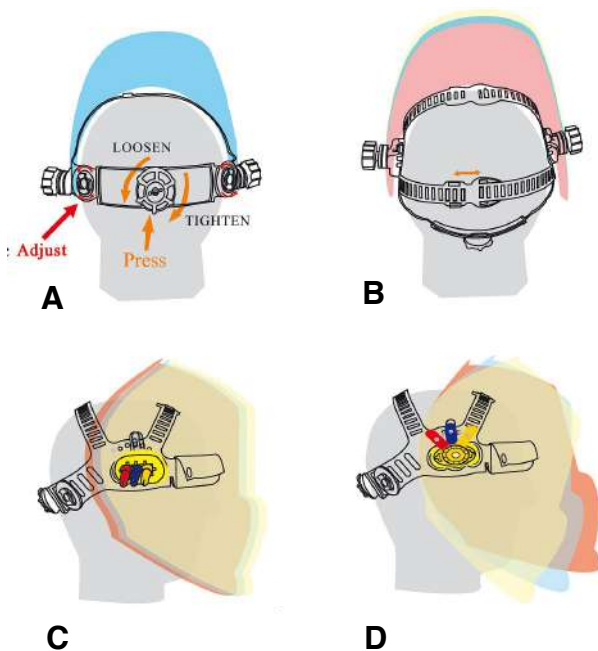


Fig. 5: Headband adjustment

- A Rear headband - Adjustment option with knob further (turn counterclockwise) or tighter (turn clockwise) to adjust the fit of the helmet looser or tighter. To adjust, first press the knob, then turn it.
- B Upper headband - Adjustment option further or tighter in the direction of the arrow to adjust the helmet to a suitable position.
- C Side straps - Adjustment possibility symmetrically wider or narrower in the direction of the arrow on both sides to adjust the distance of the user's eyes to the filter lens. To adjust, loosen the knobs on both sides of the helmet, symmetrically move the helmet to the appropriate position and tighten the knobs.
- D Tilt Angle - Adjustment options to adjust the height of the user's eyes to the filter lens and the angle of the helmet to the user's face. To adjust, loosen the knobs on the outside of the helmet, move the helmet to the appropriate position and tighten the knobs.

The adjustment possibilities of the headgears provide maximum wearing comfort.

8 Notes before Commissioning

Do not use at temperatures below -5 °C and above + 23 °C.

This product material will age and suffer damage over time, such as bursting damage. This product may no longer provide effective protection after age-related damage has occurred. Users should stop using it immediately.

This product cannot be used for welding overhead. When the helmet is used for overhead welding or overhead cutting, the molten metal droplet may pass through the filter and cause injury to the welder.

If the filter is defective, the user must stop using it immediately. Spray slag can damage the surface of the filter and the user's skin or even cause more serious accidents.

This product has a certain heat resistance and flame retardant properties. However, the mask may burn or melt if exposed to an open flame or access to high temperature objects. Please store and use properly to reduce such risks.

The filter is an electronic product and is not waterproof. Make sure it is dry and clean and not stored in a humid environment.

Non-standard operation may damage the user's body.

Please check the filter before each use. As soon as the function and appearance are no longer functional, stop using it immediately.

Do not expose this product to the sun.

9 Automatic Welding protection filter

Marking: 4 / 9-13 SWM 1/1/1/2/379 CE

Optical characteristics:

Optical class:	1
Scattered light class:	1
Homogeneity class:	1
Angular dependence class:	2

10 Common problems and solutions

Irregular darkening of the cassette

- The headband may be adjusted differently on both sides of the helmet (asymmetrical distances between eyes and viewing window). Adjust the headband and the distance to the viewing window again.

Automatic cassette does not darken or flickers

- Sensors dirty or solar panel covered.
--> Clean surface of the sensors.
- Outer viewing pane dirty or damaged.
--> Replace or clean the outer viewing pane.
- Sensitivity is set too low or the delay time is set too short.
--> Set to required value.
- Unsuitable protection level set.
--> Set suitable protection level.

Automatic cassette remains darkened after completion of the welding process

- Delay time is set too long.
--> Set to required value.

Reaction time too long

- Operating temperature too low.
--> Do not use below - 5 °C.

Faults in electrical parts.

--> Replace the automatic welding filter.

Poor visibility

- Outer pane and/or inner pane and/or filter lens are dirty.
--> Check, clean or replace outer pane. Check, clean or replace filter lens.
- Ambient light insufficient.
--> Adjust ambient light.
- Color number incorrectly set.
--> Use color tone table for correct setting

Welding helmet slips

- Headgear not correctly adjusted.
--> Adjust the headgears correctly.



WARNING!

The user must immediately remove the welding helmet and stop the application if the above problems cannot be solved. Contact your dealer.



WARNING!

If the material comes into contact with the user's skin, it could, under some circumstances, cause an allergic reaction on the skin.

11 Color Table (Recommended shade numbers)

Welding Process	Arc Current (Amperes)															
	0.5	2.5	10	20	40	80	125	175	225	275	350	450				
	1	5	15	30	60	100	150	200	250	300	400	500				
SMAW					9	10	11	12	13	14						
MIG (heavy)						10	11	12	13	14						
MIG (light)						10	11	12	13	14	15					
TIG,GTAW			9	10	11	12	13	14								
MAG/CO ₂					10	11	12	13	14	15						
SAW						10	11	12	13	14	15					
PAC						11	12	13								
PAW		8	9	10	11	12	13	14	15							
Note:																
– SMAW-Shielded Metal Arc Welding. – TIG, GTAW-Gas Tungsten Arc Welding. – MIG (heavy)-MIG on heavy metals.								– SAW Shielded Semi-Automatic Arc Welding. – MIG (light)-MIG on light alloys. – PAC-Plasma Arc Cutting. – PAW-Plasma Arc Welding.								

Fig. 6: Color table

12 Meaning of the Marking

Each product is marked with an appropriate protection level (DIN5 to DIN9 and from DIN9 to DIN13). Make sure that the correct protection level is set before starting the welding process. The classification for eye protection is according to DIN EN 379, other markings on the product are in accordance with the corresponding European standards.

Example Filter (DIN EN 379):

	4	/	9	-	13	OPTECH	X	/	X	/	X	/	X	/	X	/379
Light state scale no																
Lightest dark state scale no																
Darkest state scale no (if applicable)																
Manufacturer's identification																
Optical class																
Diffusion of light class																
Variations in luminous transmittance class																
Angle dependence of luminous transmittance class (optional)																
Number of this standard																

Fig. 7: Classification for eye protection

The safety helmet and the outer pane are marked with identification letters indicating the protection class against impact energy (flying parts):

Safety helmet: SWM 175 F CE

175: Norm
F: Low impact energy (45 m/s).

Outer pane (Safety pane): SWM 1 F CE

1: Optical class
F: Low impact energy (45 m/s);

Inner pane: SWM 1 F CE

1: Optical class
F: Low impact energy(45 m/s);
SWM: Identification of the manufacturer
CE: CE-marking

The protective equipment must comply with the requirements for operating temperatures from -5 °C to +50 °C. Otherwise, the eye protection device may only be used at room temperature.

**CAUTION!**

The mechanical strength of the helmet can only be as strong as its weakest part.

13 Care, Maintenance and Repair

**WARNING!**
Danger in case of insufficient qualification of the staff!

Insufficiently qualified persons cannot estimate the risks to the user resulting from improper repair work on the welding helmet and expose themselves and others to the risk of serious injury.

Have all maintenance work carried out only by qualified persons.

**NOTE!**

After care, maintenance and repair work, check that all covers and protective devices are properly remounted on the welding helmet.

Damaged guards and parts must be repaired or replaced by customer service.

13.1 Care by cleaning

Clean the welding filter and the protective screens with a lens cleaning cloth or a clean soft cloth with a suitable glass detergent.

Do not immerse the welding filter in water or other liquids. Never use abrasives, solvents or oil-based cleaning agents.

Please clean the surface of the welding filter, sensor and solar cells regularly.

Clean the viewing window regularly and do not use strong cleaning agents. Keep the sensors and solar panel clean by using a clean lint-free cloth.

**ATTENTION!**

Never use aggressive solvents such as acetone.

13.2 Replacement of the front pane of the helmet

Replace the outer and inner pane regularly.

Replace the outer viewing pane if it is damaged (cracked, scratched, dirty or holey)

1. Remove the used outer pane by taking out the clamps on the inside of the helmet and taking off the locking pieces on the outside of the helmet.
2. Remove the outer pane and place the new pane in the correct position.
3. Insert the locking pieces into the recesses and fasten them to the inside of the helmet with the clamps.

Replacement of the inner pane if it is damaged (cracked, scratched, dirty or holey)

13.3 Maintenance/Repair

**ATTENTION!**

- Repairs or maintenance work may only be carried out by qualified and trained personnel.
- Only use original spare parts.

If the welding helmet does not function properly, contact a specialist dealer or our customer service. The contact details can be found in chapter 1.2 Customer service.

14 Disposal, Recycling of used Devices

Please take care in your own interest and in the interest of the environment that all component parts of the machine are only disposed of in the intended and permitted way.

14.1 Decommissioning

Discarded devices must be taken out of service immediately in a professional manner in order to avoid later misuse and danger to the environment or persons.

- Remove batteries and accumulators, if available.
- If necessary, dismantle the welding helmet into manageable and recyclable assemblies and components.
- Dispose of the components in the designated disposal channels.

14.2 Disposal of the new equipment packaging

All packaging materials and packaging aids used are recyclable and must always be sent for material recycling.

These components are to be disposed of separately and in a professional manner. In case of doubt, contact the municipal waste disposal service.

If necessary, use the services of a specialised waste disposal company for processing.

15 Spare Parts



DANGER!

Danger of injury by the use of wrong spare parts!

Dangers may result for the user and damages as well as malfunctions may be caused by using wrong or damaged spare parts.

- Only use original spare parts of the manufacturer or spare parts admitted by the manufacturer.
- Always contact the manufacturer in case of uncertainties.



NOTE!

The manufacturer's warranty will become null and void if non-permissible spare parts are used.

15.1 Ordering spare parts

The spare parts may be purchased with the authorised dealer.

Indicate the following basic information for requests or orders of spare parts:

- Type of device
- Item No.
- Position No.
- Year of construction:
- Quantity
- Required mode of dispatch (mail, freight, sea, air, express)
- Address of dispatch

Spare part orders which do not include the above indications may not be taken into consideration. If the indications regarding the mode of dispatch are missing, the product is dispatched at the discretion of the supplier.

You will find information regarding the device type, item No. and year of manufacture on the type plate fixed to the welding helmet.

Example:

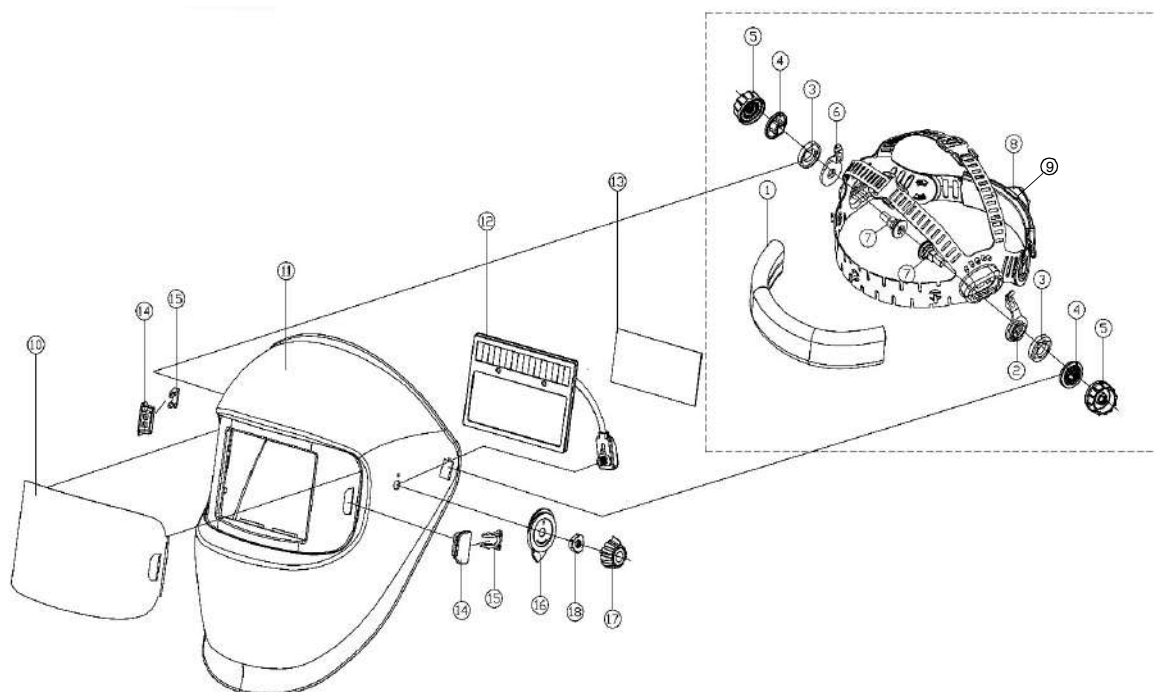
The filter cassette for the welding helmet VarioProtect XL-W TC must be ordered. The filter cassette has the number 17 in the spare parts drawing 1.

When ordering spare parts, send a copy of the spare parts drawing with marked component (filter cassette) and marked item number (17) to the authorized dealer or to the spare parts department and provide the following information:

Device type:	VarioProtect XL-W TC
Item number:	1651000
Position number:	17

15.2 Spare parts drawing

The following drawing should help you to identify necessary spare parts in case of service. If necessary, send a copy of the parts drawing with the marked components to your dealer.



- | | |
|-----------------------------|--|
| 1 Sweatband | 10 Front pane |
| 2 Left limitation washer | 11 Helmet schell (housing) |
| 3 Adjustable washer | 12 Filter cassette |
| 4 Plain washer | 13 Inner pane |
| 5 Headband adjustable knobs | 14 Locking element front pane |
| 6 Right limitation washer | 15 Clamping element |
| 7 Adjusting screw | 16 Regulation scale platelet |
| 8 Rear adjustment knob | 17 Rotary control knob (darkening level) |
| 9 Rear headband | 18 Fixing disk for rotary control knob |

Fig. 8: Spare parts VarioProtect XL-W TC

16 Electrical Circuit Diagram

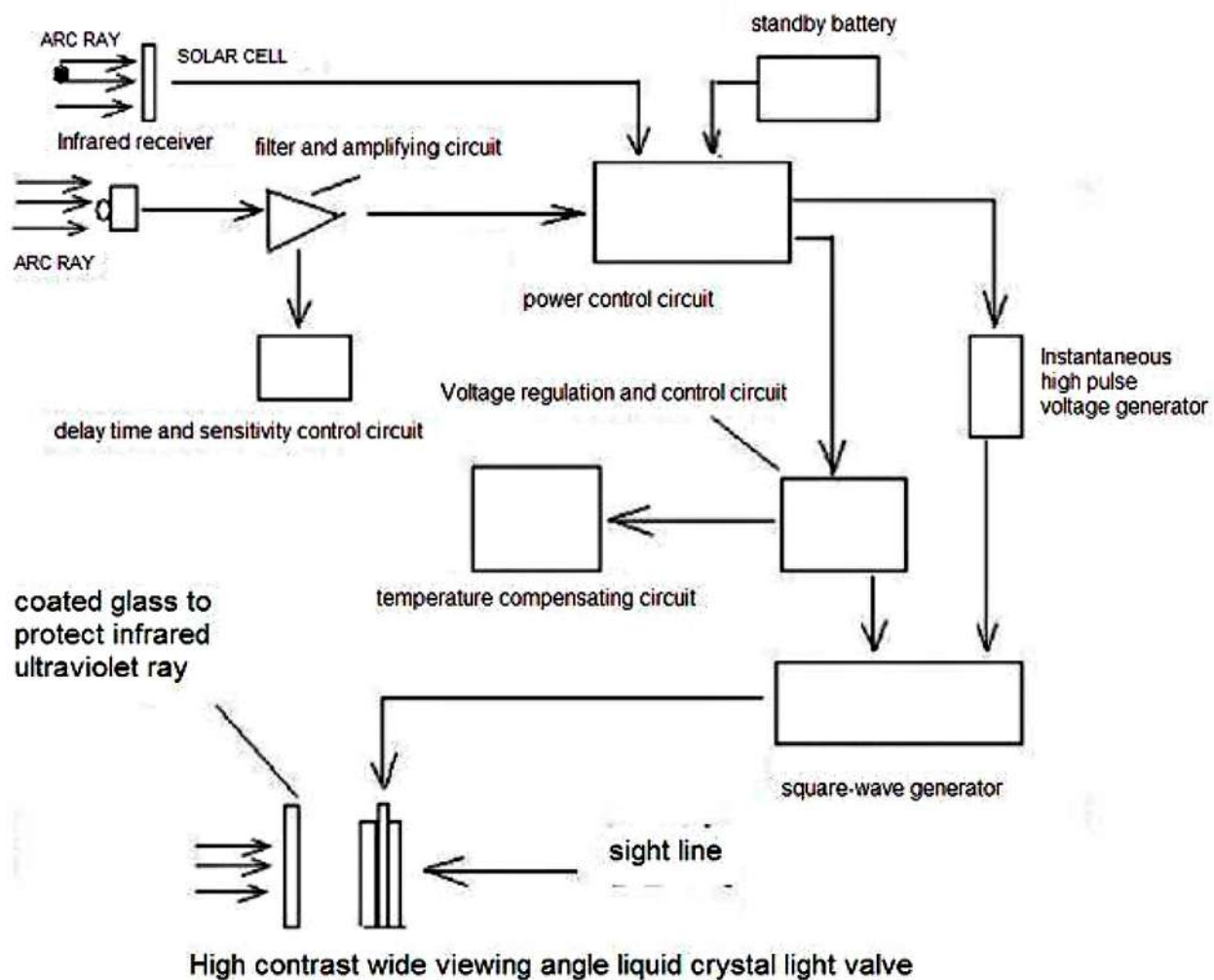


Fig. 9: Electrical circuit diagram VarioProtect XL-W TC

17 EC - Declaration of Conformity

Manufacturer/Distributor: Stürmer Maschinen GmbH
Dr.-Robert-Pfleger-Str. 26
D-96103 Hallstadt

hereby declares that the personal protective equipment (PPE) described below complies with the PPE-Regulation **2016/425/EU** and the Product Safety Directive **2001/95/EU**, and is identical with the PPE that is the subject of the test performed by the accredited testing institute.

Inner and outer pane	Automatic welding protection filter 1000SF	Face shield (helmet) 1000SH
Certification Authority	Certification Authority	Certification Authority
ECS GmbH Hüttfeldstraße 50 73430 Aalen Identification-No. 1883	ECS GmbH Hüttfeldstraße 50 73430 Aalen Identification-No. 1883	ECS GmbH Hüttfeldstraße 50 73430 Aalen Identification-No. 1883
issued EU type examination certificate.		
C2320.1SWM	C3170.2SWM	C3171.1SWM

Product group: Schweisskraft®
Designation: VarioProtect XL-W TC
Product type: Automatic Welding Helmet
Item number: 1651000
Serial number *: _____
Year of manufacture *: 20____

* please fill in according to the information on the type plate

Relevant EU-Directives: 2014/30/EU EMC-Directive
2011/65/EU RoHS-Directive

The following harmonized standards were applied:

DIN EN 175:1997-08	Personal protection - Equipment for eye and face protection during welding
DIN EN 379:2009-07	Personal eye protection - Automatic welding filters
DIN EN 166:2002-04	Personal eye protection - Requirements

Responsible for documentation: Kilian Stürmer, Dr.-Robert-Pfleger-Str. 26, D-96103 Hallstadt

Hallstadt, 11.10.2022



Kilian Stürmer
Managing Director





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