

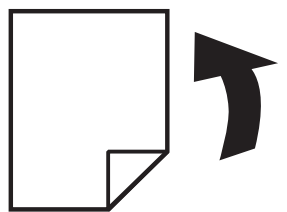
3M™ Speedglas™ 9100



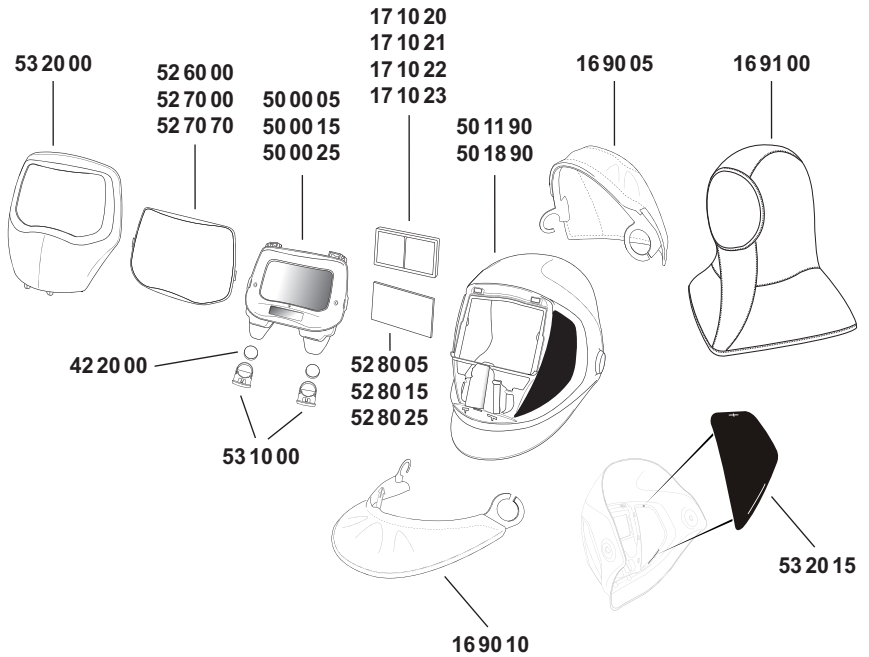
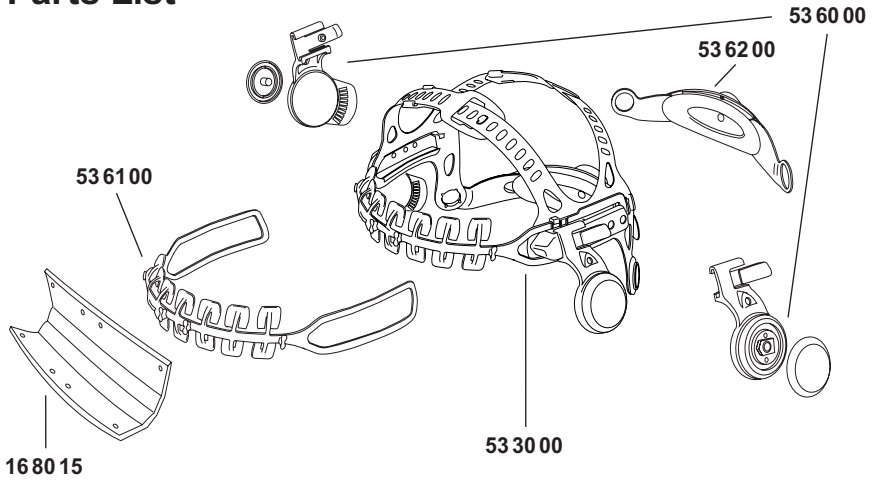
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Інструкція з експлуатації
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הוראות שימוש במסכת הריתוך



Parts List



Speedglas™

User manual 3M™ Speedglas™ 9100

CE 0196

Notified body 0196 DIN CERTCO

Prüf- und Zertifizierungszentrum Aalen

Augenschutz und Persönliche Schutzausrüstung

Gartenstraße 133, 73430 Aalen, Germany

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Instruction 3M™ Speedglas™ 9100 Welding Shield

BEFORE WELDING

For your own protection read these instructions carefully before using the Speedglas 9100 welding shield.

The complete assembly is illustrated in figure A:1.

Adjust the welding shield according to your individual requirements to reach the highest comfort. (see figure B:1 - B:4).

Shade number should be chosen according to table on page 250.

The Speedglas 9100 welding shield gives permanent protection (shade 13 equivalent) against harmful UV- and IR-radiation, regardless of whether the filter is in the light or dark state or whether the auto-darkening function is operational.

Two lithium batteries are used as the power source. (3V CR2032)

WARNING!

- When used in accordance with these user instructions, this product is designed to help protect the wearer's eyes and face from harmful radiation including visible light, ultra-violet radiation (UV), infra-red radiation (IR) and sparks and spatter resulting from certain arc/gas welding processes where shade 5, 8, 9-13 is recommended.
- Use of this product in any other application such as laser welding/cutting may result in permanent eye injury and vision loss.
- Do not use any welding product without appropriate training.
- Use only with original Speedglas brand spare parts such as inner and outer protection plates according to the part numbers provided in these instructions. The use of substitute components or modifications not specified in these user instructions might impair protection and may invalidate claims under the warranty or cause the shield to be non-compliant with protection classifications and approvals.
- The Speedglas 9100 welding shield is not designed for heavy duty overhead welding/cutting operations due to the risk of burns from falling molten metal.

- The manufacturer is not responsible for any modifications to the welding filter or use with welding shields other than the Speedglas 9100 welding shield. Protection may be seriously impaired if unsuitable modifications are made.
- Wearers of ophthalmic spectacles should be aware that in the case of severe impact hazards the deformation of the shield might cause the inside of the shield to come into contact with the spectacles creating a hazard for the wearer.

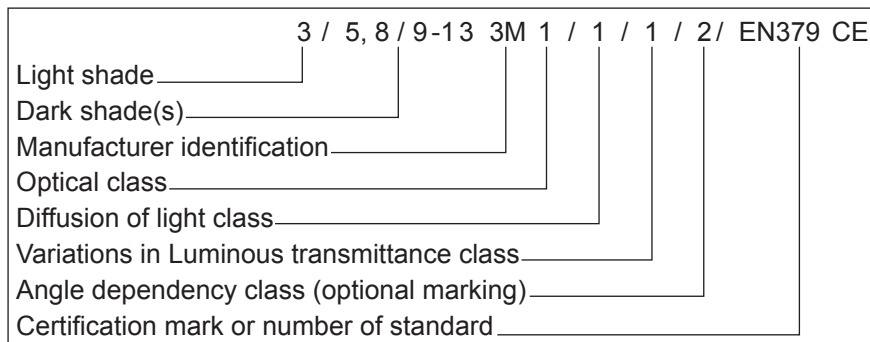
APPROVALS

Speedglas 9100 has been shown to meet the Basic Safety Requirements under Article 10 of the European Directive 89/686/EEC and is thus CE marked. The product complies with the harmonized European Standards EN 175, EN 166, EN 169 and EN 379. The product was examined at the design state by DIN Certco Prüf- und Zertifizierungszentrum (Notified body number 0196).

Markings

The welding filter is marked with the shade range and optical classifications.

The following is an example (EN 379):



Note! The above is an example. Valid classification is marked on the welding filter.

The markings on the welding shield and the protection plates, indicate safety class for protection against high speed particles. S stands for the basic requirement for increased robustness, F stands for low energy impact and B stands for medium energy impact.

If the protection meets the requirements at extremes of temperature (-5°C to +55°C) the marking is completed with the letter T. Additional markings on the product refer to other standards.

FUNCTIONS

On/Off

To activate the welding filter, press the SHADE/ON button. The welding filter automatically turns OFF after 1 hour of inactivity.

The welding filter has three photo sensors (see fig A:2) that react independently and cause the filter to darken when a welding arc is struck. The welding filter may not go to dark position if the sensors are blocked or the welding arc is totally shielded.

Flashing light sources (e.g. safety strobe lights) can trigger the welding filter making it flash when no welding is occurring. This interference can occur from long distances and/or from reflected light. Welding areas must be shielded from such interference.

Shade

Seven different Shade Number settings, split into two groups, 5, 8 and 9-13 are available in the dark state. In order to see the current Shade Number setting, momentarily press the SHADE/ON button. To select another Shade Number, press the SHADE/ON button repeatedly while the LED indicators on the display are flashing. Move the flashing LED to the desired Shade Number. To shift between the two shade groups (shade 5,8) and (shade 9-13) hold the SHADE/ON button down for 2 seconds.

In all welding processes the arc should only be viewed with the recommended dark shade. See table page 250.



Sensitivity

The programming and sensitivity of the photo detector system (which responds to the light from the welding arc) can be adjusted to accommodate a variety of welding methods and workplace conditions. In order to see the current sensitivity setting, momentarily press the SENS button. To select another setting, press the SENS button repeatedly until the LED shows the desired setting.

- Position** Locked in light state (shade 3) at all times
Used for grinding
- Position 1** Least sensitive setting. Used if there is interference from other welders' arcs in the vicinity.
- Position 2** Normal position. Used for most types of welding indoors and outdoors.
- Position 3** Position for welding with low current or with stable welding arcs. (eg TIG welding)
- Position 4** Suitable for very low current welding, use of inverter-type TIG welding machines.
- Position 5** Most sensitive setting. Used for TIG welding where part of the arc is obscured from view.
- Position** Locked in selected dark state. Same function as a passive welding filter.

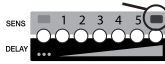


Position locked light state

This setting could be used for grinding or other non-welding activities. When the welding filter is locked in the light state (shade 3) the LED under the symbol will flash every 8 seconds to alert the user. The welding filter must be unlocked before arc welding is performed, by choosing a sensitivity setting for welding. When the welding filter turns OFF (after 1 hour inactivity), it will automatically leave the locked state and go to sensitivity setting 2.

Position 1-5

If the filter does not darken during welding as desired, increase the sensitivity until the welding filter switches reliably. Should the sensitivity be set too high, the filter may remain in the dark state after welding is complete due to ambient light. In this case, adjust the sensitivity downward to a setting where the welding filter both darkens and lightens as desired.

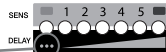


Position locked dark state

When the welding filter is locked in the dark state and the welding filter turns OFF (after 1 hour inactivity), it will automatically reset to sensitivity setting 2.

Delay

The delay function should be used to set the recovery delay from dark to light of the welding filter according to welding method and current. See table on page 250.



Comfort mode for tack welding.

This setting may help reduce eye fatigue resulting from the eye constantly adjusting to differing light levels during tack welding. Tack welding mode uses an intermediate light state (shade 5). If an arc is not struck within 2 seconds the welding filter will switch to the normal light state (shade 3).

Note that the Sensitivity and Delay function are using the same LED indicators on the display.

Low battery indicator

The batteries should be replaced when the low battery indicator flashes or LEDs do not flash when the buttons are pressed.

WARNING

Should the Speedglas 9100 welding shield fail to switch to the dark state in response to an arc, stop welding immediately and inspect the welding filter as described in these instructions. Continued use of a welding filter that fails to switch to the dark state may cause temporary vision loss. If the problem cannot be identified and corrected, do not use the welding filter, contact your supervisor, distributor or 3M for assistance.

MAINTENANCE

Replacement of outer protection plate.

Remove silver front cover. (see figure C:1)

Remove the used outer protection plate and place the new outer protection plate on the welding filter. (see figure C:2)

Silver front cover must always be used (see figure C:3).

Replacement of welding filter

The welding filter can be removed and replaced according to figure C:1 and E:1 - E:2.

Replacement of inner protection plate

The welding filter must be removed to replace the inner protection plate. The used inner protection plate is removed as illustrated in figure D:1. The new inner protection plate should be inserted after the protective film is removed as illustrated in figure D:2.

Magnifying lens (accessory) mounting (see figure D:3).

Replacement of batteries

The welding filter must be dismantled from the welding shield to access the battery compartments. Take out the battery holders (use a small screwdriver if necessary). Insert new batteries in the battery holders according to figure G:1. Slide each battery holder into the welding filter until it snaps in position. Note that all settings will be reset to the original manufacturing setting.

Speedglas 9100V and Speedglas 9100X has a solar panel (see fig A:3) to assist the batteries.

Replacement of headband

The headband can be replaced according to figure F:1-F:2.

Replacement of sweatband

The sweatband can be replaced according to figure F:3.

CAUTION

The used batteries/worn out product parts should be disposed of according to local regulations. The welding filter should be disposed of as electronic waste.

Extended coverage

Extended head and neck cover (accessory) mounting (see figure H:1 – H:2).

Temperature range

The recommended operating temperature range for the product is -5°C to +55°C. Store in a clean and dry environment, temperature range -30°C to +70°C and relative humidity less than 90%.

Inspection

The sensors (see fig A:2) on the welding filter must be kept clean and uncovered at all times for correct function.

To check that the electronics and buttons are working, press the buttons and the LED indicators will flash.

WARNING

- Carefully inspect the complete Speedglas 9100 welding shield assembly before each use. Check for cracks in the shield and look for light leaks. Cracked, pitted or scratched filter glass or protection plates reduce vision and can seriously impair protection. All damaged components should be replaced immediately.
- To avoid damage to the product do not use solvents for cleaning. Clean the welding filter and protection plates with a lint-free tissue or cloth. Clean the welding shield with a mild detergent and lukewarm water. Do not immerse in water or spray directly with liquids.
- The welding shield is heat resistant and approved against standard requirements for flammability but can catch fire or melt in contact with open flames or very hot surfaces. Keep the shield clean to minimize this risk.
- Materials that come into contact with skin may cause allergic reactions to susceptible persons.

Parts List 3M™ Speedglas™ 9100

Part no.

Description

Spare parts

50 00 05	SPEEDGLAS 9100V Auto darkening Welding Filter 5, 8/9-13
50 00 15	SPEEDGLAS 9100X Auto darkening Welding Filter 5, 8/9-13
50 00 25	SPEEDGLAS 9100XX Auto darkening Welding Filter 5, 8/9-13
50 11 90	SPEEDGLAS 9100 Shield without headband
50 18 90	SPEEDGLAS 9100 SW Shield without headband
53 20 00	SPEEDGLAS 9100 Silver front
53 30 00	SPEEDGLAS 9100 Headband including assembly parts
53 60 00	SPEEDGLAS 9100 Pivot mechanism, left and right for headband
53 10 00	SPEEDGLAS 9100 Welding filter battery holder pkg of 2
53 61 00	SPEEDGLAS 9100 Headband front part
53 62 00	SPEEDGLAS 9100 Headband back part

Consumables

52 60 00	SPEEDGLAS 9100 Outside protection plate standard pkg of 10
52 70 00	SPEEDGLAS 9100 Outside protection plate scratch pkg of 10
52 70 70	SPEEDGLAS 9100 Outside protection plate heat pkg of 10
16 80 15	SPEEDGLAS 9100 Sweatband pkg of 3
52 80 05	SPEEDGLAS 9100V Inner protection plate pkg of 5 marked 117x50
52 80 15	SPEEDGLAS 9100X Inner protection plate pkg of 5 marked 117x61
52 80 25	SPEEDGLAS 9100XX Inner protection plate pkg of 5 marked 117x77
42 20 00	Battery pkg of 2

Accessories

16 90 05	SPEEDGLAS 9100 Extended coverage crown in TecaWeld
16 90 10	SPEEDGLAS 9100 Extended coverage neck & ear in TecaWeld
16 91 00	Hood throat/head in TecaWeld
53 20 15	SPEEDGLAS 9100 Coverplate SW
17 10 20	Magnifying Lens 1.0
17 10 21	Magnifying Lens 1.5
17 10 22	Magnifying Lens 2.0
17 10 23	Magnifying Lens 2.5

Technical Specification

Weight:

Welding shield with SideWindows (excl headband and welding filter):	265 g
Welding shield w/o SideWindows (excl headband and welding filter):	240 g
Headband	120 g

Welding filter:

Speedglas 9100V	150 g
Speedglas 9100X	160 g
Speedglas 9100XX	185 g

Viewing area:

Welding filter:

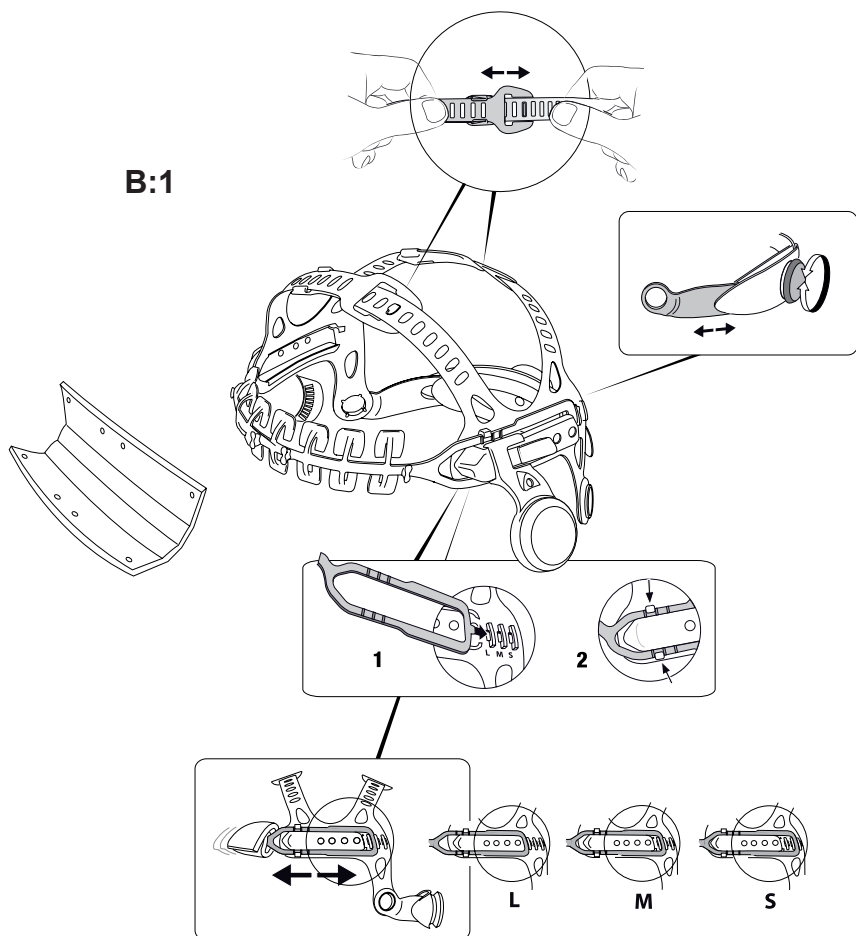
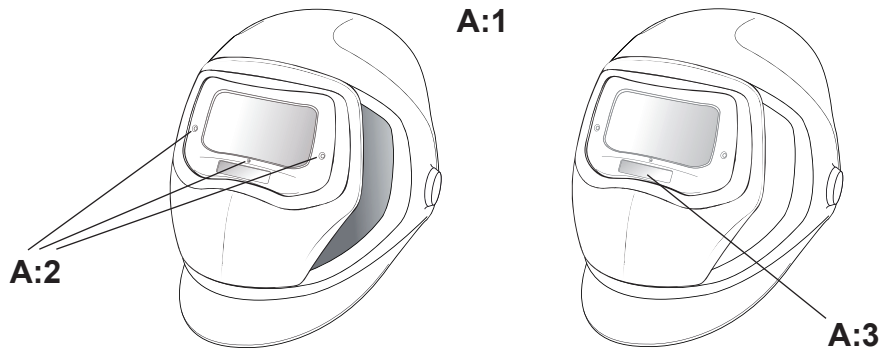
Speedglas 9100V	45 x 93 mm
Speedglas 9100X	54 x 107 mm
Speedglas 9100XX	73 x 107 mm
UV/IR protection:	According to shade number 13 (permanent)
Switching time light to dark:	0.1 ms (+23°C)
Opening time dark to light (delay)	see Recovery Delay table
Light state:	shade no 3
Dark state:	shade no 5, 8, 9-13
Fail safe state:	shade no 5
Battery type:	2 x CR2032 (Lithium 3V)
Operating temperature:	-5°C to + 55°C

Battery life:

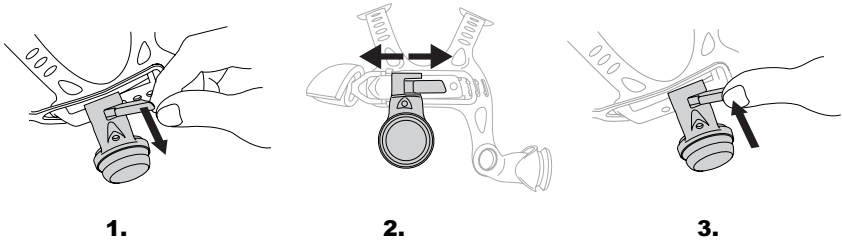
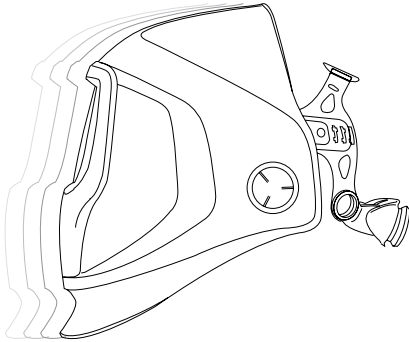
Speedglas 9100V	2800 hours
Speedglas 9100X	2500 hours
Speedglas 9100XX	2000 hours
Head sizes:	50-64

Material

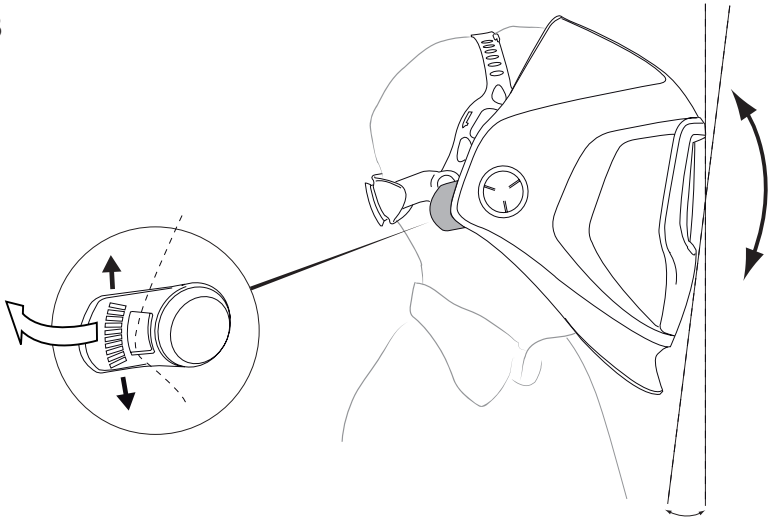
Shield:	PPA
Silver front:	PA
Welding filter:	PA
SideWindows:	PC
Headband:	PA, PP, TPE, PE
Protection plate:	PC

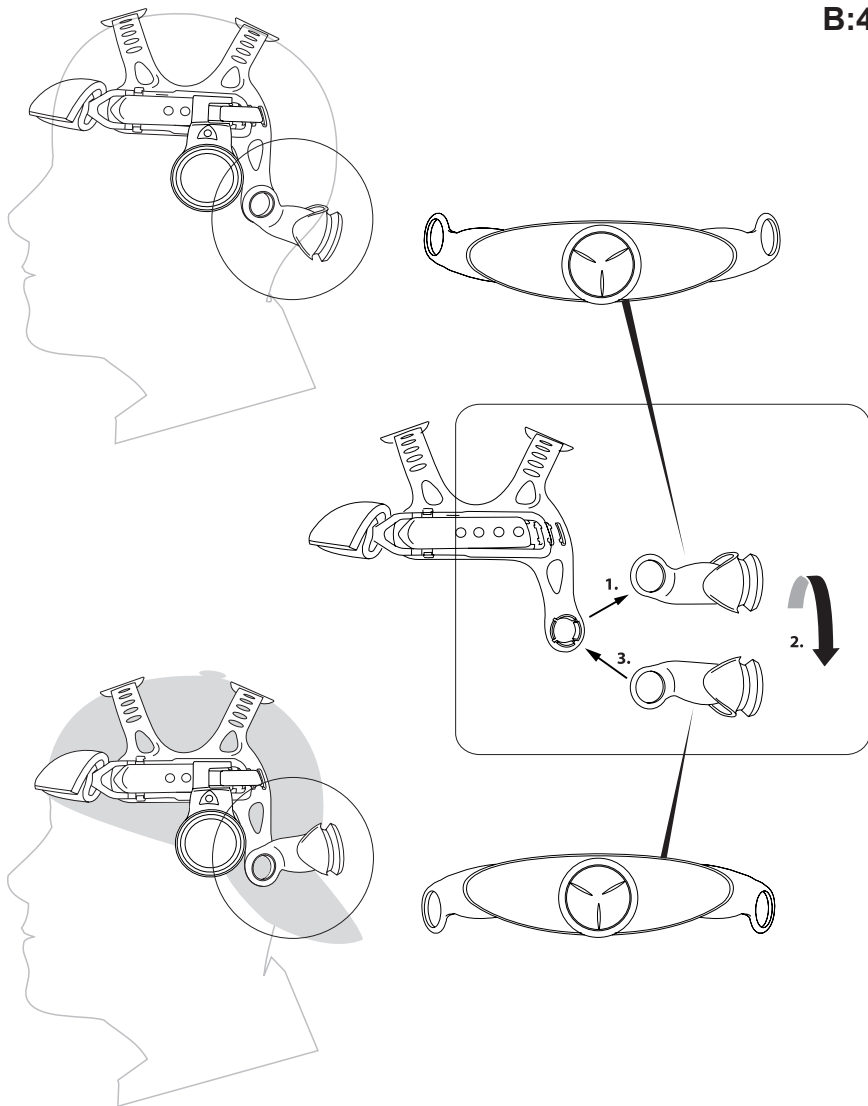


B:2

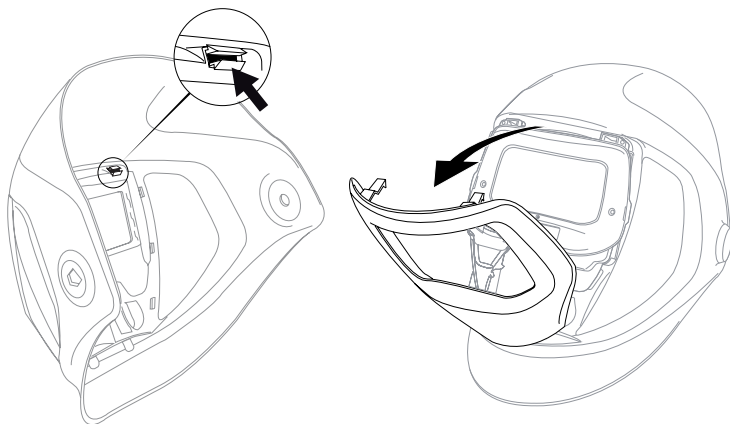


B:3

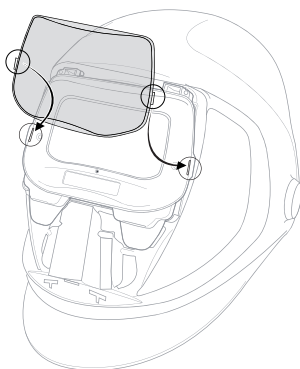




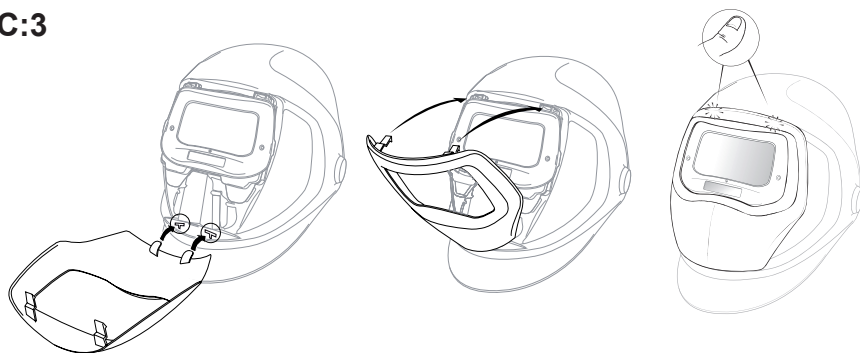
C:1



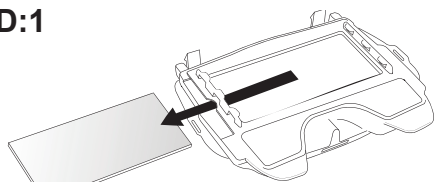
C:2



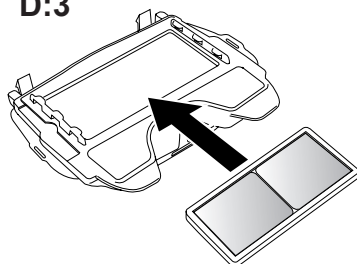
C:3



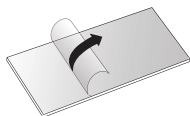
D:1



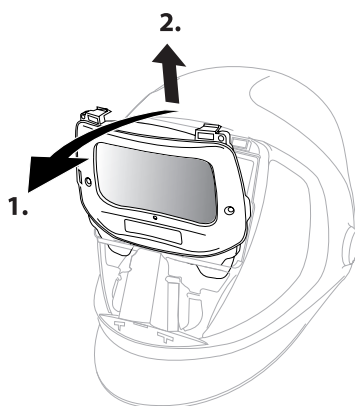
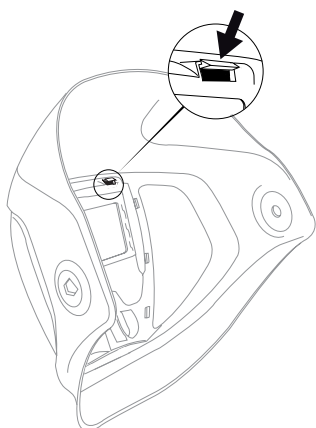
D:3



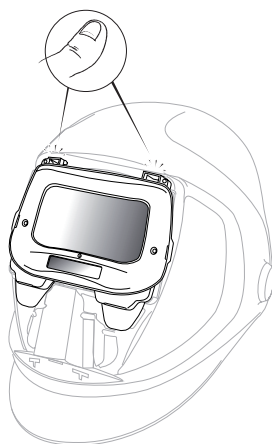
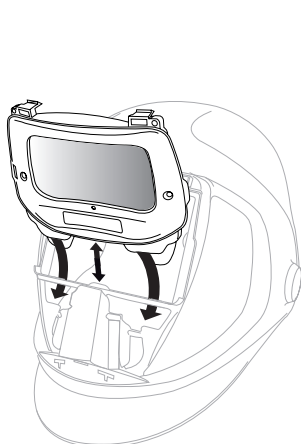
D:2



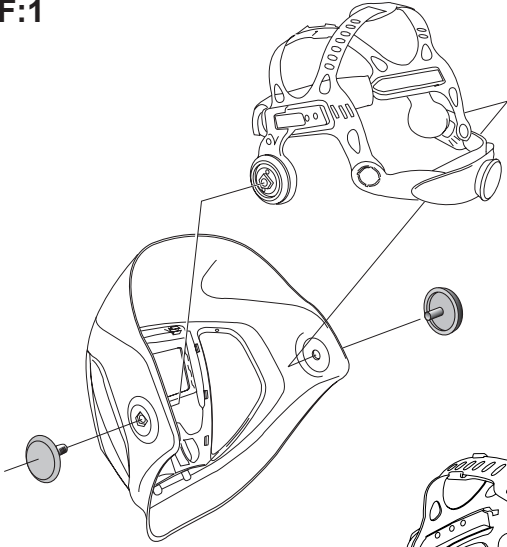
E:1



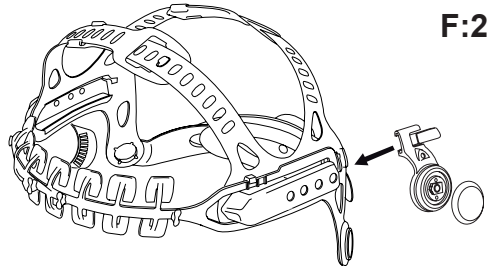
E:2



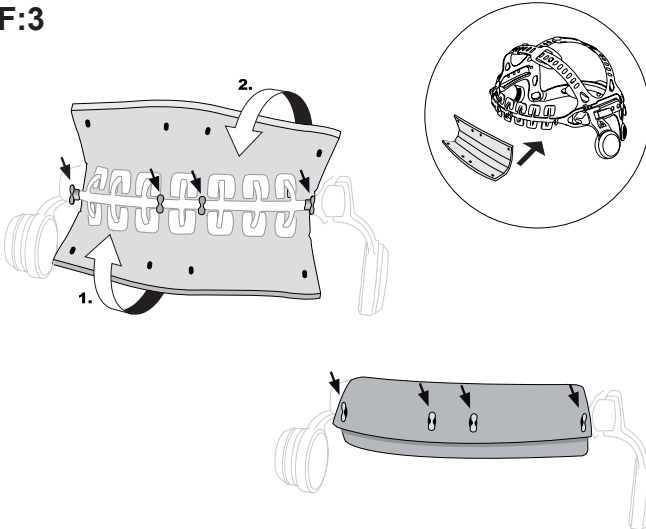
F:1



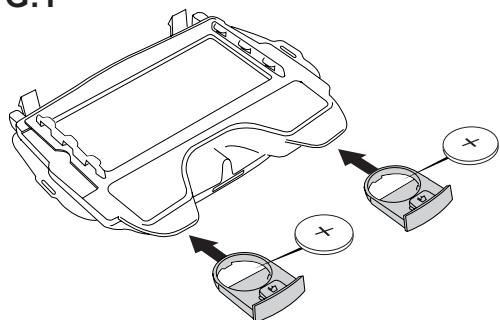
F:2



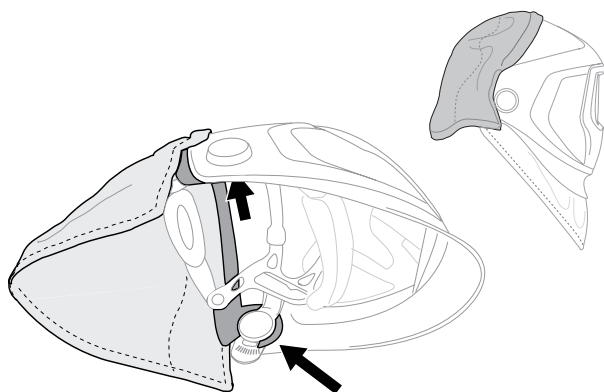
F:3



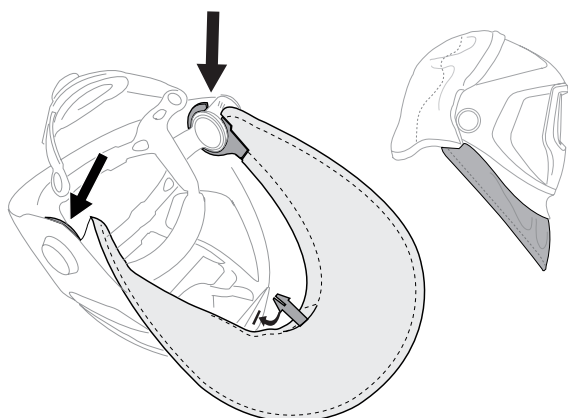
G:1



H:1



H:2



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