

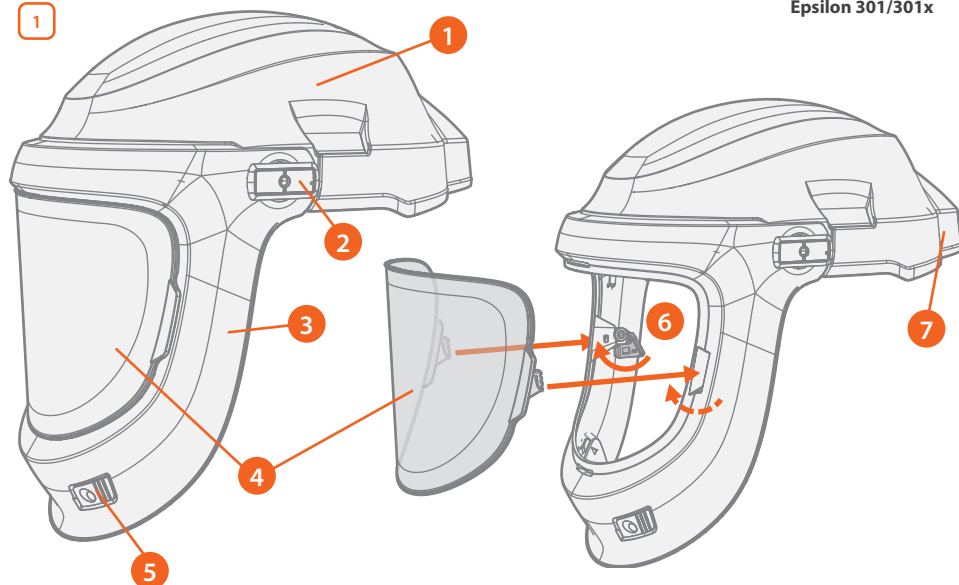
Epsilon 301/301x

An orange circle graphic containing the text "Operating manual".

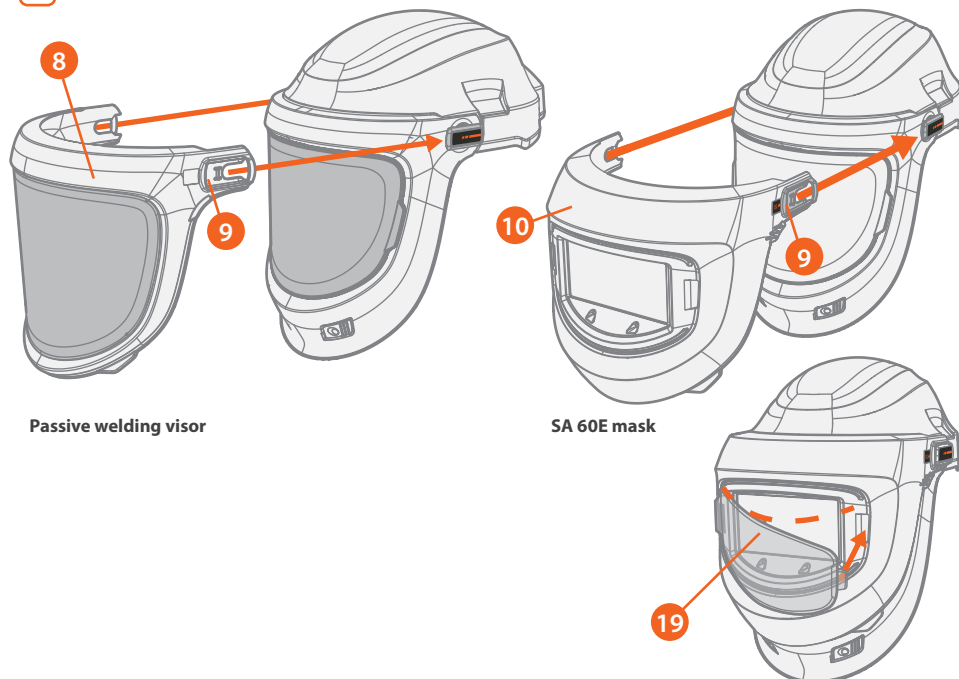
Operating manual

Operating manual – Brugsanvisning – Gebrauchsanweisung – Manual de instrucciones – Käyttöohje – Manuel d'utilisation – Manuale d'uso – Gebruiksaanwijzing – Bruksanvisning – Instrukcja obsługi – Manual de utilização – Manual de utilizare – Инструкции по эксплуатации – Bruksanvisning – Kullanım ve bakım kılavuzu – 操作手册

1



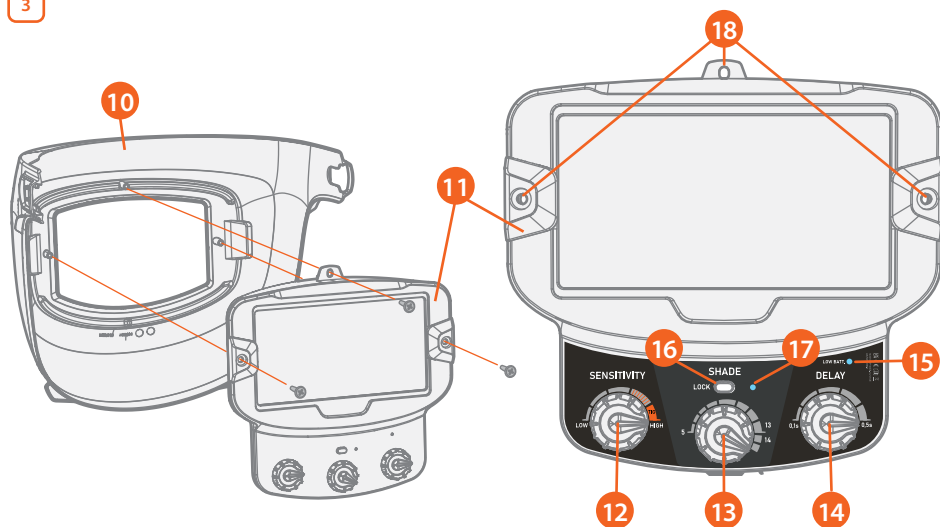
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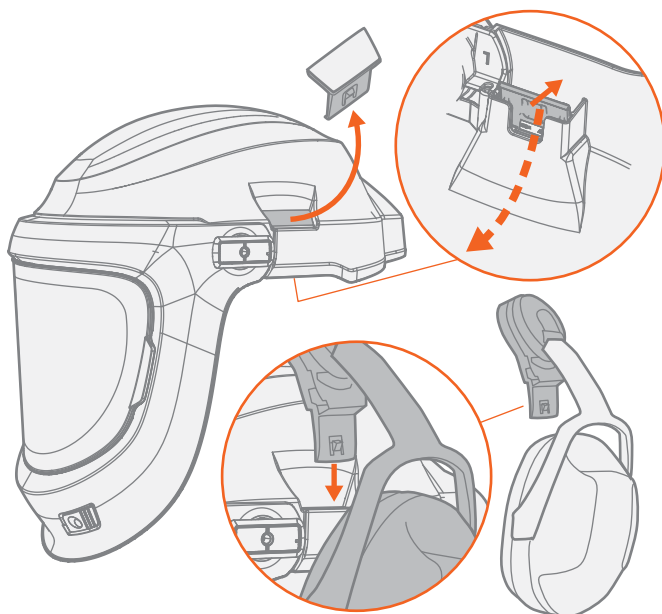
Passive welding visor

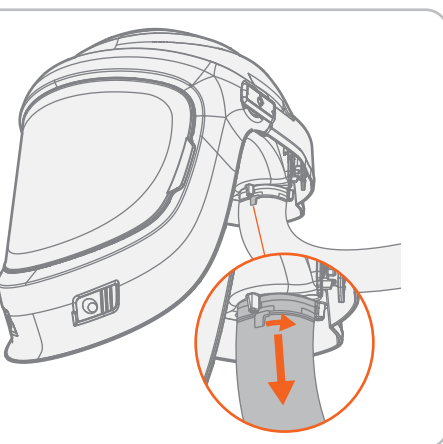
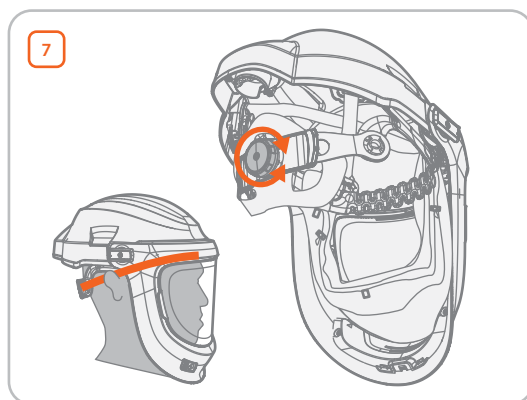
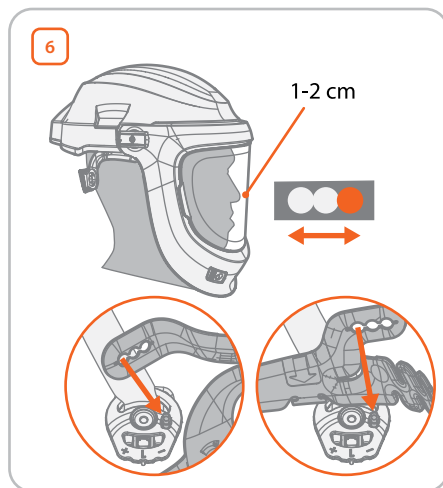
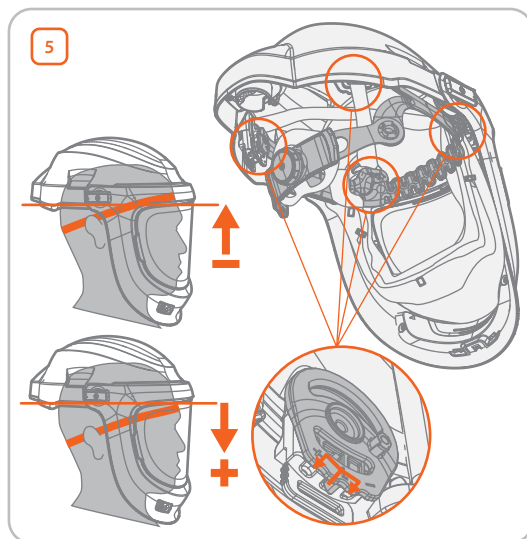
SA 60E mask

3



4





1. Introduction

1.1 Epsilon 301/301x

The Epsilon 301/301x is a multipurpose helmet designed to provide comprehensive respiratory, eye & face, and head protection for various applications such as arc welding (MMA, MIG/MAG, TIG), grinding, gouging, and plasma cutting. Head protection is ensured by an Industrial protective helmet, Type 1 designed to reduce the possible consequential effects of head injuries caused by impacts on the crown area.

Epsilon 301 and 301x are the base models for grinding with the transparent grinding visor, grinding visor shade 2 or grinding visor shade 3.

Epsilon 301 and 301x can also be adapted for welding use by adding the SA 60E mask with auto-darkening welding filter (ADF SA 60E), or by adding Passive welding visor shade 7, Passive welding visor shade 9 or Passive welding visor shade 11. It is recommended to use earmuffs compatible with Epsilon helmet that are certified in accordance with the requirements of EN 352-3.

Respiratory protection is provided by the PAPR unit (PFU 210e) or the airline unit (RSA 230).

When used together with a compatible powered filter unit (PFU 210e) or a supplied air unit (RSA 230), Epsilon models protect the user's respiratory system providing the highest level of respiratory protection: TH3 classification with PFU 210e, and 3B classification with RSA 230.

Epsilon 301x model has also integrated LED work lights that can be used when connected to the PFU 210e powered filter unit. The air hose without a cable is used with the Epsilon 301 (model without LED lights), while the air hose with a cable is used with the Epsilon 301x.

1.2 About this manual

Read this manual carefully before using the equipment for the first time. Pay particular attention to the safety instructions.

	Note	Gives the user a piece of information of particular importance.
	Caution	Describes a situation that may result in damage to the equipment or system.
	Warning	Describes a potentially dangerous situation that may result in personal damage or fatal injury.

1.3 Disclaimer

While every effort has been made to ensure that the information contained in this guide is accurate and complete, no liability can be accepted for any errors or omissions. Kemppi reserves the right to change the specification of the product described at any time without prior notice. Do not copy, record, reproduce or transmit the contents of this guide without prior permission from Kemppi.

2. Safety

Wearing a helmet can significantly reduce the risk of head injury, but does not ensure protection against all impacts. In a major impact, the helmet deforms to absorb the maximum amount of energy possible, sometimes to the point of breaking the helmet.



Warning:

- For adequate protection this helmet must fit or be adjusted to the size of the user's head. The helmet is made to absorb the energy of a blow by partial destruction or damage to the shell and the harness, and even though such damage may not be readily apparent, any helmet subjected to severe impact should be replaced. The attention of users is also drawn to the danger of modifying or removing any of the original component parts of the helmet, other than as recommended by the helmet manufacturer.
- Helmet should not be adapted for the purpose of fitting attachments in any way not recommended by the helmet manufacturer.
- Do not apply paint, solvents, adhesives or self-adhesive labels, except in accordance with instructions from the helmet manufacturer
- It is strictly forbidden to use any other than Kemppi branded parts or accessories with Kemppi's personal protection equipment. If you do not respect this safety regulation, serious damage for your health may occur.
- A service life of 5 years from the manufacturing date is recommended, assuming the helmet is stored under the specified conditions. Actual usage duration may vary depending on factors such as frequency of use, cleaning procedures, storage conditions, and maintenance. The helmet must be inspected prior to each use and replaced immediately if any defects are detected.
- Before each use, inspect the multipurpose helmet for damages and verify it operates properly. Replace damaged or worn parts.
- Use all adjustment features for maximum protection.
- Face seal needs to be in good condition, placed in front of users ears and both buckles tighten enough.
- Users should be clean-shaven where the respirator's face seal comes into contact with the face.
- Do not use in high-heat environments above the recommended maximum temperature.
- Never weld with the welding visor up or without the welding filter.
- If the auto-darkening filter (ADF) does not darken when the arc ignites, stop welding immediately. Inspect the ADF and its power supply. Change if necessary.
- Always use automatic welding filters together with suitable protection plates.
- Never use welding filter without inner protection plates.
- Never use a scratched or damaged welding filter and ocular.

- Materials which may come into contact with the wearer's skin may cause allergic reactions to susceptible individuals.
- Only operate this product within the temperature range -5...+55 °C.
- The product is not intended for use in environments with a risk of explosion.
- The helmet does not protect against explosive devices or corrosive liquids.
- The helmet is not suitable for laser welding and oxyacetylene welding/cutting processes.
- The helmet gives designed protection against high speed particles only at room temperature (EN ISO designation E) and only when all helmet components are properly attached, as described in the manual.
- When helmet is worn over any spectacles, they may transmit the impact of high speed particles, thus creating a hazard to the wearer.
- Protectors that have been subject to impact shall not be used and shall be discarded and replaced.
- If the symbols of the markings are not the same for different parts of the protection equipment, the lower protection level shall be assigned to the complete protection equipment.
- Adequate protection cannot be provided by the RPD (respiratory protection device) in certain highly toxic atmospheres.
- At very high work rates the pressure in the facepiece can become negative at peak inhalation flow.
- Wearing a helmet cannot always prevent death or permanent disability. Not suitable for driving and road use.
- A suitable risk assessment should be conducted by the user to establish if other protective equipment should be used in conjunction with the helmet.
- When connecting the air hose to the helmet, ensure that the airhose is not twisted.
- The helmet shall not be painted, have self-adhesive labels attached nor be cleaned nor disinfected with solvent or disinfectant, except in accordance with the manufacturer's instructions and information

3. Parts 1 2 3 4

Epsilon 301/301x

1. Industrial protective helmet
2. Visor and viewing angle locking clip
3. Grinding mask
4. Grinding visor (transparent, shade 2 or shade 3)
5. LED work lights (X model only)
6. Grinding visor locking clips
7. Air hose connector

Passive welding visor

8. Passive welding visor (shade 7, shade 9 or shade 11)
9. Passive welding visor/SA 60E mask locking groove

SA 60E mask

10. SA 60E mask with ADF SA 60E auto-darkening welding filter
11. ADF SA 60E auto-darkening welding filter
12. ADF: Sensitivity adjustment
13. ADF: Shade adjustment
14. ADF: Delay adjustment
15. ADF: Low battery indicator
16. ADF: Shade lock button
17. ADF: Shade adjustment indicator
18. ADF: Fixing holes to visor
19. Protection visor
20. Hearing protection

4. Using helmet features

4.1 Taking into use [5] [6] [7] [8] [10]

1. Ensure the helmet is correctly configured for your specific application.
2. Inspect the helmet carefully before every use. Inspect all components for discontinuities. Replace any defective components immediately.
3. Fit the helmet outside the contaminated area. Before placing the helmet on the head, ensure that chin strap, face seal and neck band tighteners are open. The visors should be in the up position. Ensure that the grinding visor is fully clipped with no gap between the visor and the frame or in any incorrect position. Check that the face seal is properly seated on top of the LED light casing and that there are no gaps between the face seal frame and the grinding visor frame.
4. Connect the airhose to the helmet
5. Adjust the helmet for your head:
 - A. Adjust the top bands by changing the position of the four adjustment clips. This affects the headband height. [5]
 - B. Check that the chin strap is free. A chin strap is an essential part of the helmet, required to retain the helmet on the head. Adjust the headband position to change the distance of the helmet from your face. The welding filter should be at a 1-2 cm distance from the nose. [6]
 - C. Tighten the helmet using the neck-band ratchet knob by turning it clockwise [7]. While tightening the knob, adjust the back support to find the correct position. This is when the headband feels comfortable and secure. If a comfortable position cannot be found, remove the helmet and adjust the headband position [6]
 - D. Fix the helmet chin strap under your chin. Chin strap should be tight but not cause discomfort. Adjust the straps as needed. Try to adjust the fastening buckle on the cheek area away from the chin bone. [10]
 - E. Ensure that the helmet sits comfortably and that both sides are equally positioned.
 - F. The area to check for face seal leakage is from ear to ear along the chin side of the head. If the user can feel airflow with their hand, the tightness or position of the face seal should be adjusted and the airflow retested along the entire length of the face seal.

6. To change the gap view for welding, move the welding visor/mask slightly up or down, and the visor locks in position. To enable or disable the gap view adjustment lock, remove the visor and rotate the clips on both sides 180° and reinstall the visor. [8]
7. Passive welding visor: Ensure that you have the correct welding filter in use. (Refer to the ADF chapter and the selection chart on the back page of this operating manual.)
8. SA 60E mask: Adjust the ADF welding filter settings according to your needs using the controls on the ADF welding filter.

4.2 Using respiratory protection [9] [10]

1. Ensure that the air hose cover is in place on the air hose. Replace if necessary.
2. Connect the air hose to the helmet and to the respiratory protection device: [9]
 - A. Align the air hose connector and the locking mechanism in the air duct.
 - B. While keeping the connector collar turned counterclockwise, push the connector into the air duct.
 - C. Release the connector collar to lock the air hose into its place. Ensure that the connector locks properly in position.
3. Turn the respiratory protection device on. (Refer to your powered filter unit's / air supply's user documentation for more information.)
4. Tighten the face seal properly around your face, face seal set in front of the ears, using all the tighteners in the face seal. [10]



Warning: If the face seal is not tight, the respiratory protection system may not offer the best possible protection. The air duct may only be replaced by an official Kemppi authorized service point.

4.3 Using ADF SA 60E (SA 60E mask) [3]

Shade defines (13) how dark the ADF (auto-darkening welding filter) gets when the arc ignites. To select the optimal shade, refer to the selection chart on the back page of this operating manual.

Sensitivity defines (12) how easily the ADF photo-sensors respond to arc light and trigger the darkening of the filter. Use low sensitivity for high welding currents and welding in bright lighting conditions, such as lamp light or sunlight. Use high sensitivity for low welding currents, welding in poor lighting conditions and when using a steady arc process, such as TIG welding process.

Delay defines (14) how long the ADF stays in the dark state to protect the eyes from the afterglow, when the arc is switched off. Use MIN delay time for tack welding and production welding with short welds. Use MAX delay time for welding at high amperage, where there is a strong afterglow from the weld.

4.4 ADF shade lock function 3

In the ADF, there is a SHADE lock button that locks the set shade for the time needed. By default, the shade lock is off (the light is off).

1. Press shade lock button (16): ADF goes to the earlier adjusted shade, and shade adjustment indicator (17) blinks.
2. Adjust shade. Adjusting does not affect the delay or sensitivity. (In the shade lock mode, ADF is basically an adjustable passive filter.)
3. Press shade lock button again: Shade lock is released, ADF goes to normal mode and shade adjustment indicator stops blinking.

4.5 Using work lights (Epsilon 301x) 11

Epsilon 301x helmet model has LED work lights that are powered by the powered filter unit PFU 210e battery. The battery is connected when the air hose (with cable) is connected to the welding helmet.



Note: The LED work lights are not available for use with RSA 230.

1. For charging and checking the battery, refer to the powered filter unit's documentation.
2. Use the OFF/AUTO/ON selector to turn the lights on and off. The AUTO mode turns the lights off in bright conditions (e.g. during welding) and then back on. [11]



Caution: Never use a damaged battery unit. Avoid exposure to extreme temperatures, direct sunlight, moisture, sand and dust.

Observe the battery unit while charging. If the battery unit becomes hot, smokes or there are visible deformations in the battery unit during charging, stop charging immediately.

5. Replacing parts

5.1 Headband 19 18 17 16 15

1. Remove the sweatband, if necessary. [19, 15]
2. Release the face seal fixing straps from the headband. [18, 17]
3. Release the headband from the fixing pins in each "corner" by pulling towards the center. [15]
4. Remove the headband from the helmet.
5. To install the headband, reverse the previous steps.

5.2 Grinding visor plate 1

1. To remove the grinding visor plate (4), release the visor locking clips (6) on both sides behind the visor and pull the visor plate out.
2. To install the grinding visor plate, position it in place and close the locking clips.



Note: Make sure both sides are properly aligned and in place.

5.3 ADF welding filter protection visor 2

1. To remove the welding filter protection visor (18), push one side edge of the protection plate slightly towards the center so that the tab comes out of the fixing hole in the mask.
2. To install the welding filter protection visor (18), position one side edge tab in place in the fixing hole and slightly push the opposite edge towards the center while placing the plate in its position.



Note: Make sure both sides are properly aligned and in place.

5.4 ADF welding filter inner protection plate 12

1. To remove the ADF welding filter inner protection plate, pull the other side edge of the plate out (from under the frame) by pushing it slightly towards the center and pulling the plate out.
2. To install the ADF welding filter inner protection plate, place the other side edge of the plate under the frame and slightly push the opposite edge towards the center while placing the plate in its position under the frame. Make sure the plate snaps into place properly.

5.5 ADF welding filter and battery

1. To remove the ADF welding filter from the mask, release the three screws (one at the top, two on the sides) and pull the welding filter out. [3]
2. To install the ADF welding filter in the mask, place the welding filter in its place and secure with the three screws (one at the top, two on the sides). [3]
3. To replace the ADF welding filter battery pull the battery out along with the tray. [13]

5.6 Face seal

1. Release the sweatband and the face seal fixing straps from the headband. [17, 18, 19]
2. Remove the headband. [15]
3. Release the hook clips on both ends of the face seal. [16]
4. Remove the face seal from the mask. [16]
5. Remove the separate face seal top section from the helmet by releasing the fixing straps in both ends and also the velcro at the top. [14]
6. To install the face seal, reverse the previous steps.

5.7 Chin straps

1. Release the two chin strap fixing clips in the front by pushing/pulling them forward.
2. Release the two chin strap fixing clips in the rear by pushing/pulling them forward.
3. Guide the straps through the holder in the headband and remove the chin straps.
4. To install the chin straps, reverse the previous steps.



Note: The chin straps cross in the headband holder. [20]

6. Maintenance

Inspect the helmet after each use. Replace worn or damaged parts.

6.1 Cleaning

- Clean the protection plate with mild soap, lukewarm water and a soft cloth.
- Wipe the welding filter lens with a soft, clean cloth, if necessary.
- Wipe the nozzle clean with a soft cloth and mild detergent or suitable disinfecting mask spray. Dry well before reassembling.
- Detach and wash the sweatband and face seal, if necessary.



Note: The fire retardant on the face seal gradually wears out in wash. Wash the face seal max. 5 times.

7. Packaging for transportation

To maintain product integrity during transport, the helmet is packed in a PE plastic bag and supported with cardboard inserts inside cardboard box. The packaging is designed to protect the helmet from mechanical damage, moisture, and contamination. Store and transport in dry conditions at temperatures between -20°C and 50°C.

8. Technical data

Epsilon	Epsilon 301/301x	
Compliant with standards:	Regulation (EU) 2016/425 EN 397:2025 EN ISO 16321-1:2022 EN ISO 16321-2:2021 EN 12941:2023 TH3, clause 5.20.2. excl EN 14594:2018 3B	
Type inspected and certified by:	CE Module D: CCQS Certification Services Limited, Block 1 Blanchardstown Corporate Park, Ballycoolin Road, Blanchardstown, Dublin 15 D15 AKK1 Dublin, Ireland. Notified body No. 2834. CE Module B (Respiratory protection): INSPEC International BV, Beechavenue 54-62, 1119 PW Schiphol-Rijk, The Netherlands. Notified Body No. 2849. CE Module B (Eyes and face protection): ECS European Certification Service GmbH. Hüttfeldstraße 50, 73430 Aalen, Germany. Notified Body No. 1883. CE Module B (Industrial protective helmet): RISE Research Institutes of Sweden AB. Box 857, 501 15 Borås, Sweden, Notified Body No 0402	
Manufacturer:	Kempfi Oy PL 13, Kempinkatu 1, 15801 Lahti, Finland	
Operating temperature:	-5...+55 °C	
Recommended humidity for use:	< 80 % Rh	
Storage temperature and humidity	-20...+50 °C < 80 % Rh	
Materials:	Helmet shell: PC+PBT, Visors: PC, Visor frames: PA66, Airduct and headband: PP, Face seal: PES/PVC, Sweatband: Cotton/Foam plastic Sweatband material 100 % cotton, padding foam plastic	
Weight:	Epsilon 301 (excl.visor): 950 g	Epsilon 301x (excl.visor): 980 g
Note: The Epsilon 301/301x meets Kempfi's technical specifications based on the EN 12941:2023 standard. Kempfi's technical specifications deviate from the requirements defined in section 5.20.2 of EN 12941:2023 when the SA 60E welding mask and earmuffs are installed. Increased weight represents an ergonomic risk and may cause fatigue and reduced comfort, especially during prolonged use. The manufacturer recommends assessing usage time based on working conditions, limiting continuous wearing, and taking regular breaks. If the SA 60E Welding Mask and hearing protection are not required for the operation being performed, they shall be removed. They shall only be worn during operations where their use is required.		

Welding filter	SA 60E
Welding filter type:	Auto-darkening, factory-installed
Operating temperature range:	- 5 ... + 55 °C <80% Rh
Storage temperature range:	- 20 ... + 50 °C <80% Rh
Manufacturer:	Kempfi Oy PL 13, Kempinkatu 1, 15801 Lahti, Finland
ADF switching time:	0.1 ms
ADF light state:	Shade 3
ADF UV/IR protection:	Protection at all times
Battery, replaceable:	1 x CR2450
Materials:	Plastics: PA, PC; Glass

9. Helmet and ocular markings

Helmet part	Epsilon 301/301x
Markings	EN 397:2025 T1 Adjustable 52-63 cm EN ISO 16321 KMP E HM 1-M CE EN ISO 16321 KMP W14 E HM 1-M CE EN 12941 TH3, clause 5.20.2. excl. EN 14594 3B
Type of Industrial protective helmet	T1 - Type 1
Size range	52-63 cm
Industrial protective helmet material	PC-PBT
Maximum filter shade	14
Welding protector	W
High-speed impact resistance	E (120 m/s)
High mass impact	HM
Average medium head size	1-M
CE marking (European Conformity)	CE
Standard reference	EN 397, EN ISO 16321, EN 12941, EN 14594
Identification of the manufacturer	KMP
	SA 60E mask, Passive welding visor
Markings	EN ISO 16321 KMP W14 E HM 1-M CE

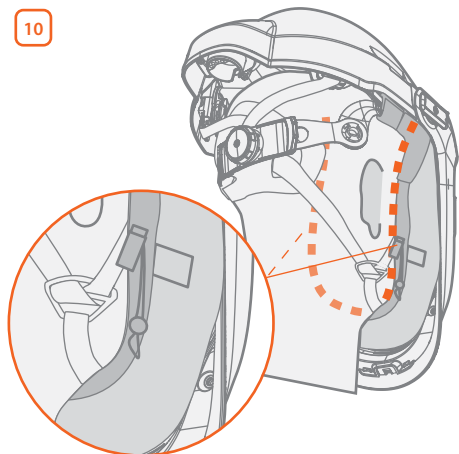
Automatic welding filter	SA 60E ADF 5-14
Markings	16321 KMP W3 / 5-14 V1 CE
Welding filter	W
Light shade / dark shade range	3 / 5-14
Angle dependence class	V1

10. Ordering codes

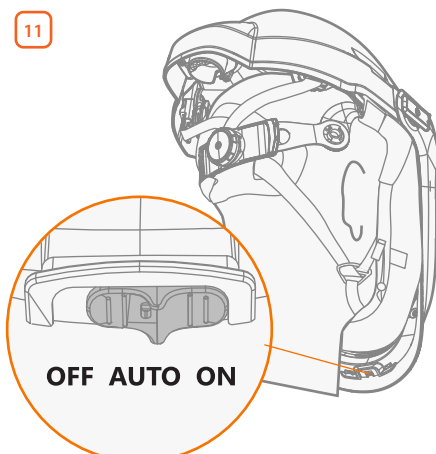
Ordering code	Description
SP026641	Grinding visor HC clear, 5 pcs
SP029068	Grinding visor HC shade 2, 3 pcs
SP029069	Grinding visor HC shade 3, 3 pcs
SP029009	Passive welding visor shade 7
SP029010	Passive welding visor shade 9
SP029059	Passive welding visor shade 11
SP029582	Epsilon grinding visor protection film, 10 pcs
SP028770	Protection visor, 5 pcs
SP027961	Epsilon Face seal set
SP026916	SA 60E ADF 5 - 14

Ordering code	Description
SP025912	Breathing Airhose
SP025921	Breathing Airhose with cable
SP028660	Sweatband, 2 pcs
SP028665	Chin strap
SP011996	PAPR PFU 210e
SP011617	RSA 230

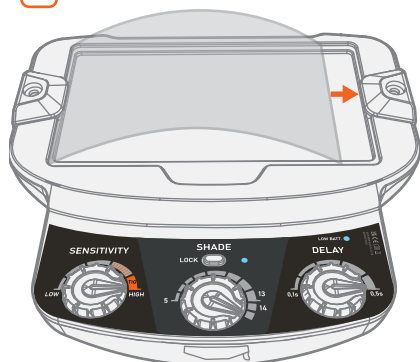
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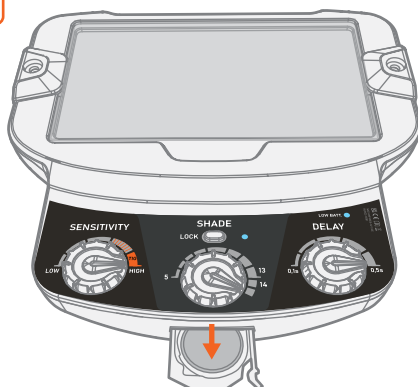
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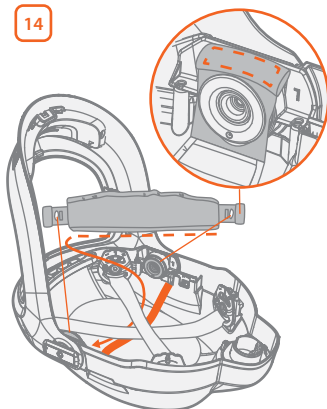
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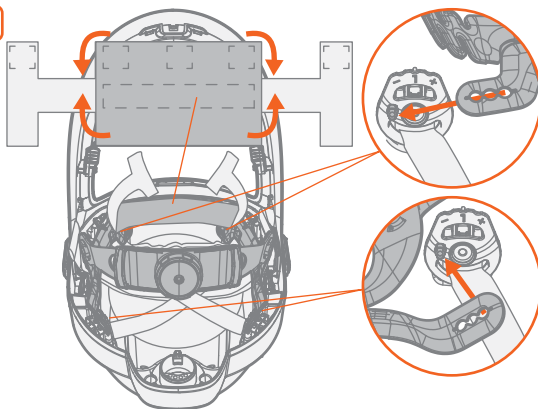
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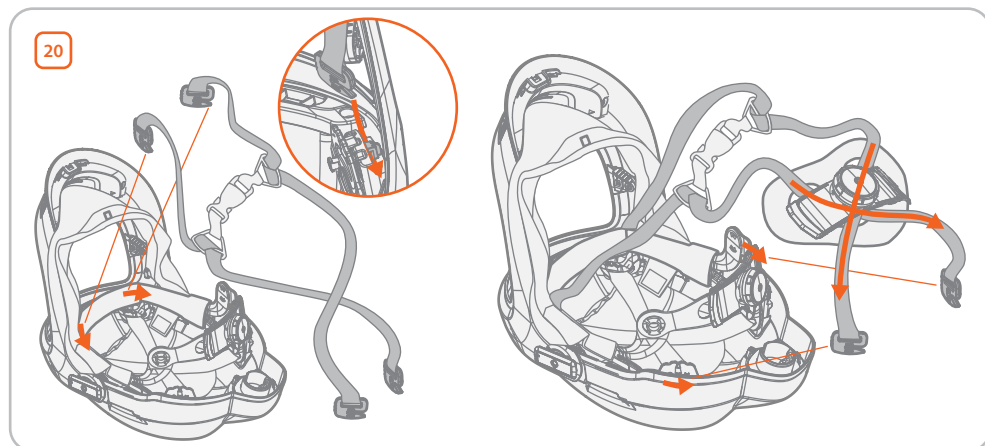
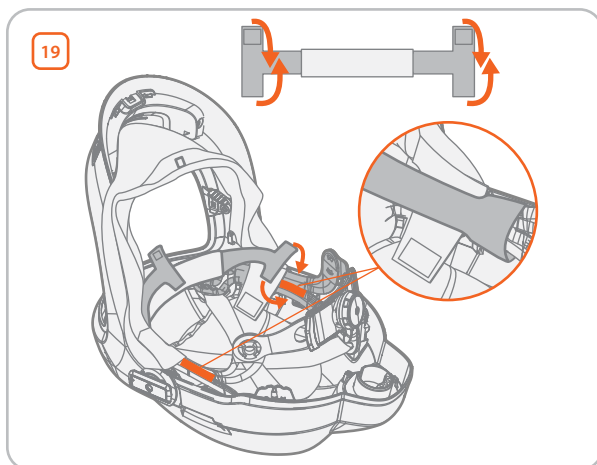
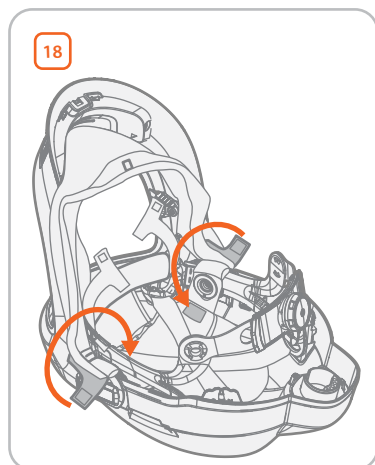
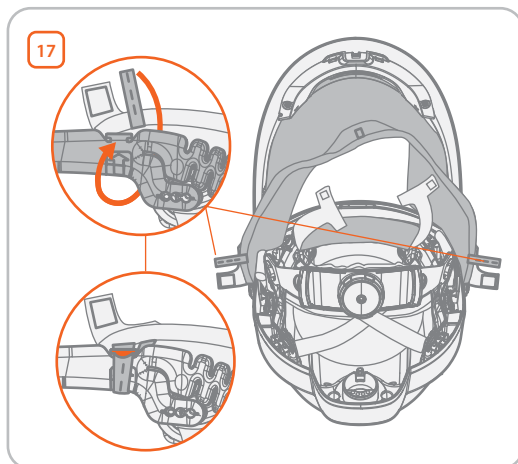
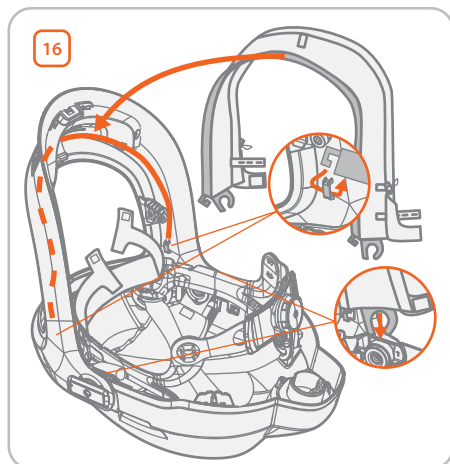


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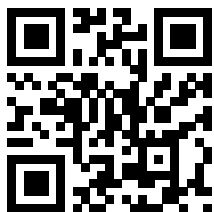
	MMA (E-Hand)	MIG, Ss	MIG, Al	MAG, CO ₂	TIG	Gouging	Plasma cutting
15 A					9		
20 A	9				10		
30 A							
40 A	10			10	11		
60 A		10	10				
80 A				11			11
100 A	11	11	11	12	12	10	
125 A							
150 A							
175 A							
200 A	12	12	12	13	13	11	12
225 A						12	
250 A			13				
275 A					14	13	13
300 A							
350 A	13	13	14	14		14	
400 A							
450 A							
500 A	14	14		15		15	
550 A			15				
600 A	15	15					



Welding helmet weight – Svejsehjelmens vægt – Gewicht der Schweißerschutzmaske – Peso de la máscara de soldadura – Hitsauskypärän paino – Poids du masque de soudage – Peso del casco per saldatura – Gewicht lashedm – Sveisemaskevekt – Masa przyłbicy – Peso da máscara de soldagem – Масса сварочной маски – Svetshjälms vikt – 电焊帽重量



See information supplied by the RPD manufacturer – Se oplysningerne fra RPD-producenten – Siehe die vom RPD-Hersteller bereitgestellten Informationen – Véase la información suministrada por el fabricante de la unidad RPD – Katso hengityksensuojaimen valmistajan toimittamat tiedot – Voir les informations fournies par le fabricant du RPD – Vedere le informazioni fornite dal produttore RPD – Zie de informatie die is verstrekt door de RPD-fabrikant – Se informasjon som leveres av RPD-tilvirker – Patrz informacje podane przez producenta zaworu – Veja as informações fornecidas pelo fabricante do RPD – См. информацию, предоставленную производителем средств индивидуальной защиты органов дыхания – Se information från RPD-tillverkaren – 请参见 RPD 制造商提供的信息



Declaration of Conformity – Overensstemmelseserklæring – Konformitätserklärung – Declaración de conformidad – Vaatimustenmukaisuusvakuutus – Déclaration de conformité – Dichiarazione di conformità – Verklaring van overeenstemming – Samsvarserklæring – Deklaracja zgodności – Declaração de conformidade – Declarație de conformitate – Заявления о соответствии – Försäkran om överensstämmelse – Uygunluk Beyanı – 符合性声明



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