

Operating Manual

3S-R AirElite Full Face Mask[®] Advantage AirElite Full Face Mask[®] Advantage 4000 AirElite Full Face Mask[®]

AirElite[®] - Full Face Masks 



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1. Safety Regulations

1.1. Correct Use

The 3S-R AirElite, Advantage AirElite and Advantage 4000 AirElite full face masks act as a face piece (EN 136 CL3) for the MSA AirElite respiratory protection device. They are not themselves complete respiratory protection devices but rather the parts for connecting the device to the user's respiratory tracts.

It is imperative that this operating manual be read and observed when using the full face masks. In particular, the safety instructions, as well as the information for the use and operation of the apparatus, must be carefully read and observed. Furthermore, the national regulations applicable in the user's country must be taken into account for a safe use.

Alternative use, or use outside this specification will be considered as non-compliance. This also applies especially to unauthorised alterations to the apparatus and to commissioning work that has not been carried out by MSA or authorised persons.



Danger!

This product is supporting life and health. Inappropriate use, maintenance or servicing may affect the function of the device and thereby seriously compromise the user's life.

Before use the product operability must be verified. The product must not be used if the function test is unsuccessful, it is damaged, a competent servicing/maintenance has not been made, genuine MSA spare parts have not been used.

1.2. Liability Information

MSA accepts no liability in cases where the product has been used inappropriately or not as intended. The selection and use of the product are the exclusive responsibility of the individual operator.

Product liability claims, warranties also as guarantees made by MSA with respect to the product are voided, if it is not used, serviced or maintained in accordance with the instructions in this manual.

2. Description

The inhalation air flows from the full face mask connection piece directly to the nose cup of the mask.

The exhalation air follows the same route however in the opposite direction.

This does not flush the eye area. Any misting of the lens is remedied by using the lens wiper.

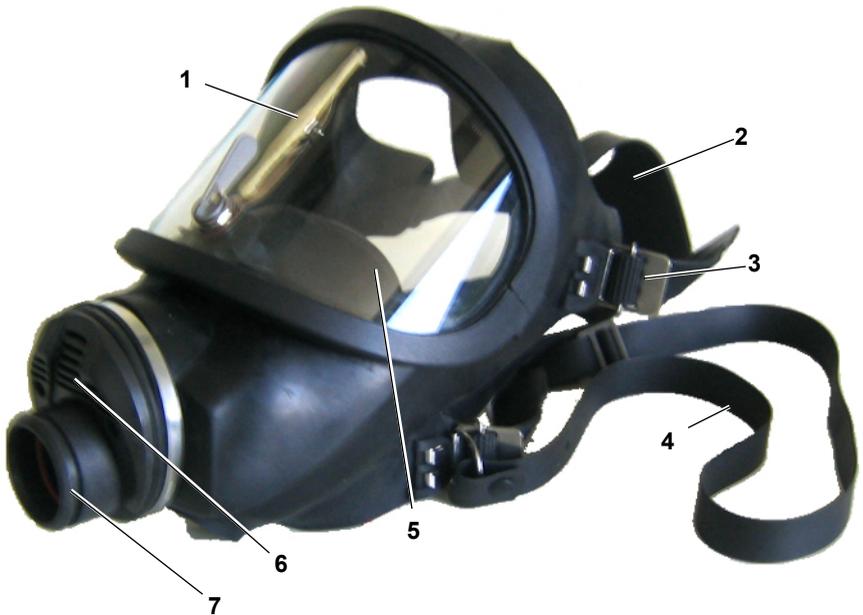


Fig. 1 Overview 3S-R AirElite

- 1 Lens Wiper
- 2 Head straps
- 3 Buckles
- 4 Harness

- 5 Mask Lens
- 6 Cap with speech diaphragm
- 7 Connection piece



Fig. 2 Overview Advantage AirElite

- 1 Lens Wiper
- 2 Head straps
- 3 Mask Lens

- 4 Buckles
- 5 Connection piece
- 6 Cap with speech diaphragm



Fig. 3 Overview Advantage 4000 AirElite

- | | | | |
|---|-------------|---|---------------------------|
| 1 | Lens Wiper | 4 | Buckles |
| 2 | Head straps | 5 | Connection piece |
| 3 | Mask Lens | 6 | Cap with speech diaphragm |

3. Use

The 3S-R mask is either carried using the harness in front of the chest or in the 3S mask container. In order to protect the inside of the 3S-R mask from dirt, the harness hook is engaged in the front buckle when the mask is held in front of the chest.

The Advantage masks must always be transported in a mask container.



Before using, soak the lens wiper cover of all masks with some drops of the MSA anti-misting agent to avoid scratching the lens.

3.1. Putting on the Mask



Attention!

The top of the mask seal must lie directly on the user's forehead. Hair should **not** be between the mask's seal and the user's skin. The mask could otherwise leak.

This danger also exists for mask wearers with beards in the sealing area.

3S-R AirElite Mask



- (1) Pull the head harness apart with both hands.
- (2) First position your chin in the chin rest.
- (3) Pull the head straps over your head. Whilst doing so, ensure that the harness is sitting correctly.



- (4) Tighten the straps in order as shown firmly and evenly. When tightening the head straps ensure that the correct sequence is followed (→ Figure Pos. 1 - 3).

Advantage AirElite Mask / Advantage 4000 AirElite Mask

- (1) Grasp the head harness with one hand by the eyelet of the head plate



- (2) Place the chin into the chin stop, then pull the harness over the head until the entire head plate lies against the head.
- (3) After the head harness is in position, make sure it lies flat against the head.



- (4) Tighten both straps (position 1) evenly and firmly.
 - (5) Tighten the straps on top (position 2) to fix the mask in an accurate and sealing position.
- If necessary, repeat the procedure.



3.2. Testing for Tight Fit

In order to check that the fit is tight, a leak test must be carried out before each use (Figures: 3S-R AirElite Mask as an example).



- (1) Seal the mask connection piece with the palm of your hand (hand ball test).
- (2) Test the tightness by inhaling and exhaling. Whilst doing so
 - when inhaling there must be negative pressure, no inflowing air should be noticeable and
 - when exhaling there must be overpressure, no breathable air should escape over the sealing edge.

If necessary retighten the straps.

If the leak test fails the mask must not be used.

3.3. Removing the Mask



- (1) Loosen the head harness, press the buckles forwards using your thumbs.



- (2) Grip the mask by the connection piece and pull off backwards over your head.

4. Cleaning and Disinfection

The cleaning and disinfection of the full face masks 3S-R, Advantage AirElite and Advantage 4000 AirElite is performed in accordance with the cleaning intervals → Section 6.

There are three possible kinds of cleaning:

- Using a washing machine
- Using an ultrasonic cleaner
- Cleaning by hand.



Attention!

Do not use cleaning products containing hydrocarbons or solvents [e.g. nitro-thinner].

Cleaned parts must not be dried in radiant heat [sun, radiators].

When using a drying cabinet, the temperature must not exceed +60°C.

Perform a tightness test after every cleaning, disinfection and maintenance or after every exchange of parts.



There are no valves inside the mask.

For cleaning and disinfection it is not necessary to unbutton inner mask.

- (1) Clean mask using lukewarm water and mild cleaning agent (e.g. EW 80) and thoroughly rinse in running water.
- (2) If necessary, disinfect the mask after cleaning.
- (3) Dry mask.
- (4) Carry out leak test (→Section 5.4).

4.1. Cleaning/Disinfection with a Washing Machine



Please follow the MSA washing agent's user instructions.

If in any doubt, ask your local MSA contact person.

- (1) After cleaning check the two screws for the lens ring. Retighten the screws hand-tight if necessary.

4.2. Cleaning/Disinfection with an Ultrasonic Cleaner



When cleaning/disinfecting with an ultrasonic cleaner please follow the MSA cleaning agent's user instructions.

If in any doubt, ask your local MSA contact person.

4.3. Cleaning by Hand

- (1) Remove inhalation and exhalation valve discs.
- (2) Unbutton the nose cup.
- (3) Unscrew the speaking diaphragm with the special tool.
- (4) Clean mask using lukewarm water and mild cleaning agent EW 80 and thoroughly rinse in running water.
- (5) Disinfect the mask after cleaning. Removed components must be separately cleaned and disinfected.
- (6) Dry mask and components and reassemble mask in reverse order.
- (7) Carry out leak test [→ Section 5.4].

4.4. Disinfection by Hand



Clean the mask before disinfecting.

Use a disinfectant according to the MSA user instructions.

If in any doubt, ask your local MSA contact person.

- (1) Disassemble and clean the mask [→ Section 4.3].
- (2) Disinfect the mask using recommended disinfectant. Please observe the user instruction for the disinfectant.
- (3) Thoroughly rinse mask in running water.
- (4) Dry mask and components and reassemble mask in reverse order.
- (5) Carry out leak test [→ Section 5.4].

5. Maintenance

A function and leak test of the mask, as well as the replacement of parts, form part of maintenance (maintenance intervals → Section 6).



Only MSA spare parts are permitted for repairs.



Attention!

After all cleaning, disinfection, maintenance or replacement of parts, a leak test **must** be carried out.

5.1. Replacement of the Speech Diaphragm

3S-R AirElite Mask



Fig. 4 3S-R AirElite Disassembly

1 Cap
2 Ring nut

3 Speech diaphragm
4 Inner mask

- (1) In order to replace the speech diaphragm, unbutton the inner mask and unscrew the ring nut with the spanner D2055038.
- (2) Remove the old speech diaphragm and fit the new speech diaphragm with the gasket to the connection piece.

Advantage /Advantage 4000 AirElite Mask



Fig. 5 Advantage AirElite/ Disassembly

- | | |
|------------------|--------------------|
| 1 Plug connector | 4 Connection piece |
| 2 Gasket | 5 Circlip |
| 3 Cap | 6 Inner mask |

- (1) Using spanner D2056738 unscrew plug connector and remove gasket.
- (2) Press the cap in the area of the adapter and loosen from the mask.
- (3) Push the circlip apart at the top ends with your thumbs until the fixing has lifted, push the circlip downwards and remove.
- (4) Push the inner mask with the connection piece inwards and remove. Then remove the inner mask completely from the connection piece.
- (5) Reassemble mask in reverse order as follows.
 - Reinsert the connection piece in the inner mask so that both openings of the inner mask have a tight fit in the connection piece and the flange is seated neatly.
 - Fit the inner mask again by pushing the connection piece through the lens opening.
 - Fit the circlip and place the cap on the connection piece.
 - Insert the gasket and screw on the plug connector with a torque of 250 Ncm (use spanner D2056738 in combination with a commercially torque wrench).
- (7) Carry out leak test (→Section 5.4).

When replacing the speech diaphragm, the entire connection piece incl. cap, speech diaphragm, circlip and O-ring must be replaced:

- (1) Disassemble the mask as described, ensuring that the inner mask is fully removed from the connection piece.
- (2) Fit the new connection piece to the inner mask and assemble the mask as already described.

5.2. Replacement of the Mask Lens

3S-R AirElite Mask



Removing mask lens

- (1) Loosen screws on the lens frame.
- (2) Remove both halves of the lens frame.
- (3) Remove lens.
- (4) Disassemble lens wiper (→ Section 5.3).

Fitting new lens



Ensure before fitting the new lens, that the mask body groove is completely clean.

- (1) Fit lens wiper to the new mask lens (→ Section 5.3).
- (2) Fit the new mask lens in reverse order from the disassembly.



After assembly, the markings in the centre must be in proportion at the top and the bottom on the mask body, lens and lens frame halves for all masks. The lens identification must point towards the connection piece.

Advantage AirElite Mask



Removing mask lens

- (1) Disassemble the mask as described in Section 5, ensuring that the inner mask is removed with the connection piece.
- (2) Loosen screws on the lens frame.
- (3) Remove both halves of the lens frame.
- (4) Remove lens.
- (5) Remove lens wiper (→ Section 5.3).

Fitting new lens



Ensure before fitting the new lens, that the mask body groove is completely clean.

- (1) Fit lens wiper to the new mask lens (→ Section 5.3).
- (2) Fit the new mask lens in reverse order from the disassembly.

5.3. Replacing the Lens Wiper

- (1) Unscrew wiper screw.
- (2) Remove washer and lens wiper from the shaft.
- (3) Before assembly of the new wiper remove the shaft with the O-ring and lightly coat with special grease. BARRIERTA 1 EL is recommended (→ ordering information).
- (4) Fit the O-ring again with the shaft.
- (5) Place the lens wiper and washer on the shaft again and secure with the wiper screw.



Secure the wiper screw during the assembly with unlockable screw sealing coat LOCTITE 242 (→ ordering information).

5.4. Leak Test

The testing of the full face masks for tightness is performed using the MSA mask leak testing instrument in combination with the MSA mask leak testing adapter with plug connector 10074842 in accordance with the relevant operating manual.

The full face masks are considered tight when, with overpressure and underpressure respectively in the mask of 10 mbar, the pressure change is not more than 1 mbar within a minute.

6. Testing Intervals

The applicable regulations in each area of use must be observed (e.g. shorter intervals where there are higher risks). If necessary, the work must be performed at earlier intervals other than those in the table.

Instruments	Work to be carried out	Maximum Intervals				
		Before Use	After Use ¹⁾	6-Monthly	Two Years	Six Years
Full face mask	Cleaning and Disinfection		X			
	Visual, Functional and Tightness Check		X	X ²⁾		
	Application of anti-misting agent		X	X		
	Replacement of the Speech Diaphragm					X
	Check by Apparatus user	X				

¹⁾ Face pieces which are used on a regular basis should be cleaned as often as necessary. They should be cleaned as soon as possible after each use. Disinfection must be carried out, at the latest, before handing over the device to another wearer.

²⁾ Only random tests in the case of airtight packed devices.

7. Safekeeping and Storage

For the safekeeping of the full face mask the mask container should be used.

Storage must be in clean and dry conditions in a normal climate, i.e. cool, dry and free from contaminants, protected from light and heat radiation.



Attention!

In order to avoid deformation of the wiper place the lens wiper into the centre position.



Attention!

In order to avoid damage to or the deformation of the full face masks no additional objects shall be kept in the mask container. Observe the instructions on the lid of the mask container.

8. Ordering Information

8.1. 3S-R AirElite Full Face Mask

Description	Part No.
3S-R AirElite Full Face Mask	10065153
Spare Parts	
Lens	D2055197
Lens wiper lever, complete	D2055747
Lens wiper	10071734
Speech diaphragm (2 per package)	D2055708
Lens frame (1 package)	D2055746
Accessories	
Spanner (for assembly of the speech diaphragm)	D2055038
3S mask container	D2055709
Testing Instrument	
MSA mask leak testing instrument	D6063705
Mask leak testing adapter with connector (needed for mask leak testing instrument)	10074842
Disinfectant	
MSA anti-misting agent klar pilot Super Plus	10032164
Recommended Special Agents	
Cleaner EW 80, by Tremonia Chemie, Dortmund	
Special lubricant BARRIERTA, by Klüber Lubrication München KG, Geisenhausenerstraße 7, 81379 Munich	
Screw sealing agent LOCTITE 242, by LOCTITE Deutschland GmbH, Arabellastr. 17, 81925 Munich	

8.2. Advantage AirElite Full Face Mask

Description	Part No.
Advantage AirElite Full Face Mask	10065154
Spare Parts	
Lens	10068944
Lens frame (1 package)	10068943
Lens wiper lever, complete	D2055747
Lens wiper	10071734
Harness (replacement)	10118775
Connection piece complete (incl. cap, speech diaphragm, circlip and O-ring)	10068941
Accessories	
Spanner for plug connector	D2056738
Mask container	10026179
Tester	
MSA mask leak testing instrument	D6063705
Mask leak testing adapter with connector (needed for mask leak testing instrument)	10074842
Cleaner and Disinfectant	
MSA anti-misting agent klar pilot Super Plus	10032164
Recommended Special Agents	
Cleaner EW 80, by Tremonia Chemie, Dortmund	
Special lubricant BARRIERTA, by Klüber Lubrication München KG, Geisenhausenerstraße 7, 81379 Munich	
Screw sealing agent LOCTITE 242, by LOCTITE Deutschland GmbH, Arabellastr. 17, 81925 Munich	

8.3. Advantage AirElite 4000 Full Face Mask

Description	Part No.
Advantage 4000 AirElite Full Face Mask	10118774
Spare Parts	
Harness (replacement)	10118775
Lens	10068944
Lens frame (replacement)	10118776
Lens wiper lever, complete	D2055747
Lens wiper	10071734
Connection piece complete (incl. cap, speech diaphragm, circlip and O-ring)	10068941
Accessories	
Spanner for plug connector	D2056738
Mask container	10026179
Tester	
MSA mask leak testing instrument	D6063705
Mask leak testing adapter with connector (needed for mask leak testing instrument)	10074842
Cleaner and Disinfectant	
MSA anti-misting agent klar pilot Super Plus	10032164
Recommended Special Agents	
Cleaner EW 80, by Tremonia Chemie, Dortmund	
Special lubricant BARRIER TA, by Klüber Lubrication München KG, Geisenhausenerstraße 7, 81379 Munich	
Screw sealing agent LOCTITE 242, by LOCTITE Deutschland GmbH, Arabellastr. 17, 81925 Munich	

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