AirMask 1000 Positive Air Pressure Respirator Standard Operating Procedure

Introduction

The AirMask 1000 system is intended for use by trained staff requiring respiratory protection during clinical, infectious disease, aerosol-generating, decontamination, and chemical exposure activities.

The AirMask 1000 is a positive pressure respirator designed to provide high-level respiratory protection through powered airflow and appropriate filter selection. It is suitable for use across healthcare environments where respiratory hazards are present, including situations involving aerosol transmission, infectious risk, or exposure to hazardous substances.

The appropriate filter must be selected according to the identified risk:

- **P3 filter** – For use where protection against airborne pathogens or respiratory contaminants is required. E.g. particulate, aerosol, biological and infectious risks, including HCIDs, AGPs, respiratory infection control, theatre, ward, ED and IPC-related use.
- **ABEK1P filter** – for combined gas, vapour and particulate protection, including chemical exposure scenarios, decontamination areas, and incidents involving substances such as peracetic acid or other identified chemical hazards.

Filter selection must always be determined through local risk assessment and in line with relevant infection prevention, COSHH, and respiratory protection guidance.

The AirMask 1000 must only be used by staff who have received training in its use, including pre-use checks, donning and doffing, filter selection, alarm response, cleaning, and decontamination procedures. Training can be provided by Cires following purchase of AirMask 1000 Respirators.

Pre-Use Checks

STEP 1 – INSPECT

Before each entry into a contaminated, clinical, infectious, or controlled area, the following inspections should be performed:

- Visually check all parts including the power unit, mask, harness, straps, filter unit, bellows and connectors. If any parts are missing, damaged or not functioning correctly, replace them only with approved AirMask 1000 parts before proceeding.
- Check the **POWER UNIT** for cracks, holes, damage, contamination or missing parts. Do not use the device if there is any visible damage or evidence of misuse.

- Check bellows for splits, holes or distortion. The bellows must not be damaged or compressed in a way that could obstruct airflow to the mask.
- Check that the power unit has sufficient battery charge to complete the intended work period. Press the ON/OFF button and check the battery indicator LEDs. A full charge is recommended before use.
- Check the **FILTER UNIT** carefully. Ensure the correct filter is fitted for the hazard. The filter must be clean, undamaged and correctly secured. Do not use the filter if there is any sign of damage, contamination, impact, cracking, loose fitting, or blocked media.
- For clinical, infectious disease and AGP use, ensure a **P3 filter** is fitted unless a local risk assessment requires an alternative.
- For chemical or decontamination exposure, ensure the correct **ABEK1P filter** is fitted where gas, vapour and particulate protection is required.
- Check the **MASK** to ensure there are no cracks, tears, distortion, contamination or damage. Check the exhalation valve for dirt build-up, obstruction or damage. Remove any visible dirt, hair or debris that could affect valve operation.
- Check that the mask connection points are clean and undamaged.
- Check the **HARNESS / STRAPS** are intact, clean, elastic and correctly attached to the mask. Straps should be adjusted to support the mask comfortably and securely. There is no need to overtighten.
- If using the full-face mask option, check the visor area, face seal, straps and connection points before use.

Do not use the AirMask 1000 if any component fails inspection.

STEP 2 – TEST FLOW CAPACITY

This test checks the status of the filters and that the AirMask 1000 is able to deliver sufficient airflow before use.

1. Ensure the unit is charged and the correct filter is fitted.
2. Place the main unit on a stable surface.
3. Ensure the guard link is connected where required.
4. Open the flow test plug at the flow outlet end.

5. Press the TEST/MODE button.
6. Confirm that the battery LEDs and TEST/MODE LED indicate a successful flow capacity check.
7. Close the flow test plug once the test is complete.

If the flow test fails, do not use the unit. Check the filter, filter housing, bellows and battery charge. If the issue cannot be resolved, remove the unit temporarily from service and contact the CIRES team for further advice.

Operating Modes

The AirMask 1000 includes a user interface with:

1. ON/OFF button
2. Battery level indicator LEDs
3. Blocked filter indicator LED
4. Internal buzzer
5. TEST/MODE button
6. TEST/MODE LED

ON/OFF Button

The ON/OFF button is used to wake and operate the AirMask 1000 main unit.

Before use, press the ON/OFF button to activate the pre-charged main unit and confirm the battery status.

TEST/MODE Button

The TEST/MODE button is used to perform the flow capacity check and to switch between operating modes where applicable.

Battery Indicator Lights

The AirMask 1000 is fitted with battery indicator LEDs. The unit should be fully charged before use.

If a low battery alarm activates during use, the wearer must leave the contaminated or clinical area immediately and recharge or replace the unit as required.

Blocked Filter Indicator / Alarm

If the blocked filter indicator activates or the alarm sounds, the wearer must leave the contaminated or clinical area immediately and replace the filter before further use.

Do not continue working in the area if any alarm is active.

Filter Selection

The correct filter must be selected before use.

P3 Filter

The P3 filter is suitable for particulate and aerosol hazards and should be used for:

- HCID preparedness and response
- Aerosol Generating Procedures (AGP's)
- Respiratory infection control
- Emergency Departments
- Theatres
- Intensive Care
- IPC-controlled environments
- Ward-based airborne precautions
- General clinical use where biological aerosol protection is required
- Other clinical or healthcare settings where airborne or aerosol risk is identified

ABEK1P Filter

The ABEK1P filter is suitable where combined gas, vapour and particulate protection is required and may be used for:

- Peracetic acid exposure
- Formalin exposure
- Chemical spill response
- Decontamination areas
- Sterile services / scope decontamination areas
- Other locally risk-assessed chemical hazards

Filter selection must always be based on local risk assessment, COSHH assessment, IPC guidance and the known or suspected hazard.

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Mask Fitting and Suitability

The AirMask 1000 is a positive air pressure respirator system and does not rely on a tight face seal in the same way as a negative-pressure disposable or reusable tight-fitting respirator.

The mask must be fitted securely and comfortably to the wearer. Straps should be adjusted so that the mask remains stable during use, without excessive pressure or overtightening.

Users must check:

- The mask sits correctly on the face
- The straps are secure
- The airflow starts correctly
- There is no obvious obstruction to airflow
- The system remains comfortable during use

If the mask cannot be worn safely or comfortably, the user should not enter the hazardous or clinical area.

Donning Procedure

Half Mask

1. Ensure the head harness is correctly fitted to the mask and that the strap buckles are connected.
2. Pull the neck strap out and place it around the back of the neck.
3. Place the mask onto the face and pull the head cradle over the head.
4. Tighten the straps until the mask is secure and comfortable. Do not overtighten.
5. Twist the release ring to remove the guard link from the main unit.
6. Press the ON/OFF button to wake the pre-charged main unit.
7. Slide the main unit down along the back of the head until it rests securely in the support hooks.
8. Push-fit the mask into the main unit until it connects securely with an audible click.
9. Ensure the supporting hooks are at a comfortable height and adjust as necessary.

10. Place the strap buckles over the neck pad.
11. Confirm airflow is present and the unit is operating correctly before entering the area.

Full Face Mask Option

1. Loosen the straps and place the head through the bottom opening of the straps.
2. Position the chin correctly into the full-face mask. Ensure chin rest is in correct position.
3. Pull the straps evenly until the mask is secure and comfortable.
4. Ensure no hair or obstruction is trapped under the mask cushion.
5. Twist the release ring to remove the guard link from the main unit.
6. Press the ON/OFF button to wake the pre-charged main unit.
7. Place the main unit at the back of the neck/head.
8. Connect the full-face mask to the main unit securely until the connection clicks into place.
9. Pull the strap band over the neck pad and ensure it is securely latched.
10. Adjust the straps so that the main unit sits comfortably and does not obstruct movement.
11. Confirm airflow is present and the unit is operating correctly before entering the area.

Doffing Procedure

Doffing must be performed in accordance with local IPC procedures and the required doffing sequence for the clinical or contaminated environment.

Half Mask

1. Leave the contaminated or clinical area before removing the respirator unless local emergency procedures state otherwise.
2. Pull the strap buckles off the neck pad.
3. Twist the release ring to disconnect the mask from the main unit.

4. Lift the main unit along the back of the head to clear it from the supporting hooks and remove it.
5. Remove the mask carefully.
6. Push-fit the guard link back onto the main unit.
7. Place the respirator components in the designated cleaning or decontamination area.

Full Face Mask

1. Leave the contaminated or clinical area before removing the respirator unless local emergency procedures state otherwise.
2. Pull the strap band off the neck pad.
3. Twist the release ring to disconnect the mask from the main unit.
4. Remove the main unit.
5. Loosen the bottom straps and remove the mask carefully.
6. Push-fit the guard link back onto the main unit.
7. Place the respirator components in the designated cleaning or decontamination area.

Use During HCIDs, AGPs and Clinical Procedures

When used for HCIDs, AGPs, ED, theatre, IPC or ward-based respiratory protection, the AirMask 1000 should normally be used with a P3 filter unless a different hazard has been identified.

The AirMask 1000 may be used as part of local PPE procedures for:

- Suspected or confirmed infectious respiratory disease
- HCID preparedness
- Aerosol Generating Procedures
- Emergency airway management
- Theatre procedures
- Critical care procedures
- High-risk respiratory care

- IPC escalation areas
- Staff unable to use tight-fitting FFP3 protection due to facial hair or fit limitations

Use must always be in line with local IPC policy, clinical risk assessment and PPE guidance.

Use During Decontamination or Chemical Incidents

Where chemical exposure is possible, the AirMask 1000 must be fitted with the appropriate chemical filter.

For peracetic acid, disinfectant chemical exposure, formalin exposure, chemical spill response or decontamination-related vapours, the ABEK1P filter may be required.

Before entering the area, staff must confirm:

- The substance or likely substance involved
- The correct filter type to be used
- The expected duration of exposure
- The decontamination procedure
- Emergency exit arrangements
- Whether additional PPE is required, such as gloves, apron, gown, visor, hood or chemical-resistant clothing

If the chemical is unknown, or the filter suitability cannot be confirmed, do not enter the area until a competent person has completed a risk assessment similar to the above.

Cleaning

The manufacturer recommends that the AirMask 1000 is cleaned after every use.

The power unit, mask, harness, straps, neck support and filter unit should be cleaned separately as appropriate.

Before cleaning, remove the mask from the power unit and reattach the guard link.

Filters must not be washed, immersed or autoclaved. Used filters should be replaced and disposed of in line with local risk assessment and contamination level

Cleaning the Mask, Harness and Neck Support

The mask, harness and neck support may be cleaned using one of the following methods.

1. Disinfectant or Cleaning Wipes

- Use locally approved disinfectant or cleaning wipes.
- Wipe the inside and outside of the mask.
- Pay attention to the exhalation valve area, connection points, straps and areas in contact with the wearer.
- Remove any visible contamination, dirt, residue or biological material.
- Allow the mask to dry fully before reuse or storage.

Wipes containing aggressive chemicals should only be used if approved by local decontamination procedures and confirmed as compatible with the device. Please contact support@cires-safe.com for a full list of approved wipes.

2. Warm Soapy Water or Washer-Based Cleaning

- The mask may be cleaned with warm water and mild detergent.
- Use water and drying temperatures below 50°C unless using an approved decontamination cycle.
- For hand washing, use a soft brush, sponge or cloth to remove stubborn dirt or residue.
- Rinse the mask thoroughly in clean water to remove detergent residue.

Important: If cleaning residue remains on the mask, it may cause skin irritation or affect valve operation.

- Allow the mask to air dry in a clean environment.
- Do not dry the mask by placing it directly against heaters or using excessive direct heat.
- The mask may also be dried with a clean, lint-free cloth.

Before reuse, check that the exhalation valve operates freely and that all parts are dry and correctly reassembled where required.

Cleaning the Power Unit

The power unit must not be fully immersed in water.

Clean the power unit by:

- Wiping external surfaces with an approved disinfectant wipe or damp cloth
- Cleaning around the release ring and connection points
- Removing visible contamination from the outer casing
- Ensuring the unit is dry before storage or charging

Do not allow fluid to enter electrical components, charging ports or internal areas. When cleaning do not allow fluid past any areas indicated in the user manual.

Decontamination / Sterilisation

Where required by local IPC or decontamination policy, the AirMask 1000 may be subject to enhanced decontamination.

The unit can be used within an autoclave process where this has been approved locally and is required for the intended clinical use.

PLEASE NOTE: Repeated autoclaving will reduce the expected lifespan of the unit:

- Standard expected lifespan: approximately **5 years**
- Expected lifespan with repeated and regular autoclave use: approximately **3 years**

Autoclave use should therefore be reserved for settings where sterilisation or enhanced decontamination is required and where this process has been approved by the organisation.

Following autoclave or enhanced decontamination, the unit must be inspected before reuse, including:

- Power unit condition
- Mask condition
- Harness and straps
- Bellows
- Connectors
- Valve operation

- Battery function
- Flow capacity test

Any damaged or degraded components must be temporarily removed from service and Cires contacted for troubleshooting.

Drying and Storage

After cleaning or decontamination:

- Allow components to dry fully in a clean environment.
- Store the unit in a clean, dry location.
- Keep the unit away from direct sunlight, excessive heat, chemicals or contamination.
- Ensure the unit is fully switched off before storage.
- Recharge the unit as required so it is ready for emergency or clinical use.

Filter Replacement

Filters must be replaced:

- If damaged
- If visibly contaminated
- If the blocked filter alarm activates
- After chemical exposure where required by risk assessment
- After infectious exposure where required by IPC procedure
- At the end of the defined use period
- If there is any doubt about filter integrity

Changing the Pre-Filter

1. Unlock the filter door.
2. Slide the door open.
3. Remove the pre-filter using the tab.
4. Dispose of the used pre-filter according to local waste procedures.

5. Fit the new pre-filter.
6. Close and lock the filter door.

Changing the Main Filter

1. Remove the filter unit from the power unit.
2. Remove the filter assembly.
3. Open the filter door.
4. Separate and dispose of the used main filter according to local waste procedures.
5. Fit the new filter.
6. Reassemble the filter unit.
7. Close and lock the filter door.
8. Reattach the filter unit to the power unit.

Maintenance

Visual Inspection

Before and after use, check:

1. The filter unit is connected to the power unit securely.
2. The filter door is correctly locked.
3. The bellows are not damaged, distorted or torn.
4. The mask plugs and connectors are clean and undamaged.
5. The release ring rotates correctly.
6. The battery indicator lights operate correctly.
7. The blocked filter indicator is not active.
8. The straps and harness remain intact and functional.
9. The mask is clean, dry and free from damage.
10. The unit passes the flow capacity check.

Any failed inspection must result in the unit being removed from service until checked and/or repaired.

Training Requirements

All users must receive training before using the AirMask 1000.

Training should include:

- Purpose and limitations of the device
- Filter selection
- Pre-use checks
- Donning and doffing
- Flow capacity check
- Battery and alarm indicators
- Use during clinical and infectious risk settings
- Use during chemical or decontamination incidents
- Cleaning and decontamination
- Storage and maintenance
- Local IPC and emergency procedures

Training should be refreshed periodically and whenever local procedures, equipment or use cases change.

Action if Fault Occurs During Use

If any of the following occur during use, the wearer must leave the contaminated or clinical area immediately:

- Low battery alarm
- Blocked filter alarm
- Loss of airflow
- Unusual noise or vibration
- Damage to the mask or power unit
- Breathing discomfort
- Suspected contamination inside the mask (e.g. unknown smell)
- Incorrect filter identified

- Any concern about protection level

The device must not be reused until checked and cleared for use. Contact support@cires-safe.com in the case of any queries/concerns.

Key Safety Points

- Always select the correct filter for the hazard.
- Use P3 filters for particulate, aerosol and infectious disease risks.
- Use ABEK1P filters where gas, vapour and particulate protection is required.
- Do not enter a hazardous area if the filter suitability is uncertain.
- Do not use damaged equipment.
- Leave the area immediately if an alarm activates.
- Clean and decontaminate after use.
- Inspect before reuse.
- Follow local IPC, COSHH, RPE and PPE procedures at all times.