

USER INSTRUCTION MANUAL Airkem PAPR

CE Approved to EN12941 : 1998+A1:2003+A2:2008 TH3 P R SL

RESPIRATORY PROTECTIVE DEVICE - POWERED FILTERING

DEVICE, INCORPORATING 7 HEADTOPS

CLASS TH3 P R SL



Covers Helmets:

KM58S4P Airkem PAPR Complete system Navitek S4 P R SL KM58S13P Airkem PAPR Complete system Navitek S13 P R SL KM58S314P Airkem PAPR Complete system Navitek S314 P R SL KM7700P Airkem PAPR Complete system Navitek Clear Visor P R SL KM7705P Airkem PAPR Complete system Navitek shaded Visor P R SL KM97S4P Airkem PAPR Complete system Navishock S4 P R SL KM97S13P Airkem PAPR Complete system Navishock S13 P R SL KM97S314P Airkem PAPR Complete system Navishock S314 P R SL KM97O0P Airkem PAPR Complete system Navishock S314 P R SL KM9700P Airkem PAPR Complete system Navishock Clear Visor P R SL KM9705P Airkem PAPR Complete system Navishock Shaded Visor P R SL KM9705P Airkem PAPR Complete system Navishock Shaded Visor P R SL

Important:

This user instruction manual must be read and fully understood before using the Air unit.

The user instruction manual must be retained for future reference.

Compulsory Information for the use of a powered respirator with

hood type head unit

It is imperative that these user instructions are strictly followed when using / operating the Airkem System. Failure to follow these instructions may invalidate any warranty protection that is offered or available to you in respect of the product(s). Please refer to the terms of your purchase contract in respect of the product(s) for the specific details of such warranty cover.

The product(s) are designed to protect your health and wellbeing. Failure to comply with these user instructions may also adversely affect your health / wellbeing.

Please read these user instructions carefully before unpacking your product(s).

No recommendation is given as regards the suitability of this product for your needs. If you have any questions regarding the suitability of this product to your task, please contact an occupational hygienist or call the manufacturer's technical help line.

Address and Telephone number contact information is printed at the back of this leaflet.

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1. Introduction:

Airkem is a respiratory protective system which is based on the principle of circulated over pressured air in the hood and Helmets. The belt-mounted blower unit delivers air through a filter and via an air hose into a headpiece (a hood or mask). The supply of filtered air creates positive pressure inside of the headpiece, which prevents the external contaminated air from entering the user's breathing zone.

2. Range of application

Welding in unconfined spaces. Powered air filtering device incorporating a welding helmet to protect against particles

3. Approvals:

Airkem has been designed and manufactured to comply with EN12941: 1998+A1:2003+A2:2008

as a TH3 P R SL device.

BS4275 (Guide to implementing an effective respiratory protective device program), which the user is advised to read, defines an EN12941 1998+A1:2003+A2:2008

TH3 P R SL device as offering an Assigned Protection Factor of 20.

Airkem can only provide this level of protection when used with filters provided by the manufacturer marked " **Airkem** " and "EN12941: 1998+A1:2003+A2:2008 TH3 P R SL".

Welding helmets **Navitek** is certified to EN 175 B and **Navishock** is certified to EN 175 B Navishock safety helmets are certified to EN379 and Softek and visors are certified to EN166.





Airkem is manufactured under ISO 9001:2000 Quality System.

4. Preconditions for use:

This Respirator must be used strictly in accordance with this user instruction manual and the instructions supplied with the corresponding head-units (hoods).

The user must read and understand all the following "Instructions for Use" well to be able to use the respiratory protective system correctly. Any questions should be directed to the manufacturer contact points noted below.

When the blower unit is switched off, little or no respiratory protection is to be expected. When the blower unit is switched off a rapid build up of carbon dioxide and depletion of oxygen within the head unit may occur and so **it is essential not to use the blower unit when it is switched**

THE UNIT MUST NOT BE USED:

- In an atmosphere that is immediately hazardous to user hygiene or health and or has oxygen content of less than 19.5% or contains unknown substances.
- In confined spaces or unventilated areas such as tanks, pipes, canals etc.
- Near to flames and or sparks
- In areas with danger of explosion.
- In an area where there are high winds.
- If the blower unit stops working due to any reason, the user must leave the contaminated area immediately.
- If the system is used with the Navishock safety helmet welding helmet in an outdoor or well-ventilated zone the user must **NOT** wear headtop whilst moving to the work zone providing the area contains no known contaminates. Where not possible an internal risk assessment is to be carried out by the company's health and safety department.
- This headtop should not be used for any other purpose other than welding and related pre and post work. Transitioning to work zones will require a risk assessment. This head top is not to be used as a general visor system for general used other than stated.
- Filters shall only be filled to the Blower unit and **NOT** directly to the helmet or hood.

It is also essential that:

- Nothing is allowed to touch the moving parts.
- There is no attempt to modify or alter the unit or filter in any way
- Water or other liquids enter the unit in any way in particular the motor and fan, the filter or the battery.
- If the system is used with the Navishock safety helmet welding helmet in an indoor or not well-ventilated zone where respiratory protection is required in all areas the user **MUST** transit to the work zone always following the designated marked walkways. Where not possible an internal risk assessment is to be carried out by the company's health and safety department.
- Before use, the user **MUST** familiarise themselves with the work zone move any object that the user may collide with due to reduced view. Where not possible an internal risk assessment is to be carried out by the company's health and safety department.

Make sure that the headpiece fits the user's face perfectly. Only then is the efficiency of the system sufficient. The protective factor of the complete system is reduced if the seal of the headpiece is not fitted properly, for eg. Due to beards or long hair intervening into the seal line.

There is a possibility that the hose to the head unit may become caught up in use. The blower unit should be positioned on the person in such a way as to reduce this possibility.

Filters cannot be fitted directly to the head units and should not be adapted to do so.

Correct respiratory protection will not be provided if any parts of the equipment are modified in any way.

At very high work rates the pressure in the device may become negative at peak inhalation flow.

Airkem systems are for use only by competent, trained personnel. Filters should not be modified to fit different blower units.

ATTENTION! If any of these conditions is not kept or followed, the warranty is automatically invalid.

The user is advised to leave the contaminated area immediately if:

The Manufacturer's Minimum Design Flow (MMDF) warning Alarm sounds.

Breathing becomes difficult.

Dizziness or distress occurs.

Any part of the system becomes damaged.

Airflow into the Head-Unit decreases or stops.

Contaminant can be smelt or tasted inside the Head-Unit

Materials that may come into contact with the user's skin are not known to cause allergic reactions to the majority of individuals but in the unlikely event of a reaction, the user should immediately leave the contaminated area, remove the unit and seek medical advice.

5. System Overview:

The **Airkem** unit is a belt mounted powered respirator with a replaceable, disposable high efficiency particle filter system. The system is certified with the helmets covered in section 10 and they cover head sizes from 535 to 600mm circumference.

The **Airkem** unit contains a removable 8hr rechargeable battery pack.

The **Airkem** unit will warn the user when the MMDF of 170 L/min, is not achieved with its audible alarm and flashing LED's.

In operation once the alarm sounds, the user must immediately leave the work area and reach an area nominated to be safe. The unit has visual alarm for a low battery and a multiple alarm – audible, visual with vibration for a blocked or missing filter. Depending on the fault, the user should replace the Pre Filter with a new one (In very dusty environments the Pre Filter will need changing frequently) and or re-charge or change the battery for a fully charged one. If the blocked filter alarm continues to sound the main filter should be changes. Only when the unit will function with the alarm switched off and the flow rate has been tested to be acceptable, should the user return to the work place.

The filter has been developed especially for this unit. It is used to filter the air the user will breathe. It is essential that the user checks the filter for any signs of damage or deformation that could potentially let contaminated air into the unit. The filter must be disposed of if the filter is damaged or if clogged to the point of triggering the systems alarm mechanism.

The removable rechargeable battery used is a Lithium Ion cell. When supplied the battery may hold a small charge, the unit should be run flat and then charged for sixteen hours before the first use.

6. Unpacking / Assembly / Usage:

6.1. Unpacking:

Check that the package is complete and that no part is damaged due to the transport or for other reasons.

A package with the complete system including accessories contains:

1. Blower unit incl. Battery and P R SL Filter and Pre Filter

- 2. Belt
- 3. Air hose
- 4. Air flow indicator
- 5. Battery charger
- 6. User Instructions

6.2. Assembly:

Attach the respiratory unit onto the belt: Pass the inner strap through the back of the blower loops. The pass through the 2 belt loops and then through the buckle.



Fit the battery to the Blower unit:





6.2.1. Waist-Belt Adjustment:

Put the belt around your waist with the blower unit to the back and fasten the two ends together. If the belt is too loose, slide the male adjuster down the belt, towards the female half. If the belt is too tight. slide the male adjuster away from the female half.

Repeat the above processes until a comfortable and secure fit is achieved. Once the belt fits correctly, secure any excess belt material using the Velcro sections.





6.2.2. Particulate Filter:

Use only Airkem filters and Pre Filters as supplied by Weltek.

It should first be ascertained by consulting an occupational hygienist or by calling the manufacturers technical help line as to whether or not the **Airkem** Filter will offer suitable protection from the hazard.

The respiratory power unit is equipped with a high efficiency particle filter of class P R SL and a Pre Filter.



As soon as the warning alarm sounds, the pre filter should be exchanged or checked. In very dusty area's this can be necessary on a frequent basis.

The filters must be regularly checked (see Air Flow Test) and replaced. **Filters are intended to be replaced and not cleaned / re-used.**

Make sure that the new filters are within their expiry date, unused and not evidently damaged. From the hygienic point of view the maximum working time of a main filter is 90 hours and should not be exceeded.

Warning !

It is essential that the user must not confuse the markings on the filter relating to any other standard other than EN12941 1998+A1:2003+A2:2008 with the classification of the device when used with this filter.

6.2.3. Removing the Filter:

Lay the unit on its back (filters facing up) on a clean surface away from contaminates hold the unit with one hand and turn the filter anti clockwise. Clean the unit from any dust on the surface **Do** <u>not</u> use tools for this



5.2.4. Fitting a new Filter:

Inserting a new filter: Test the filter on top of the opening gently the filter should drop into place. Slowly turn the filter clockwise ensuring that the filter is not cross threaded. Continue to tighten until the filter stops turning. Do <u>NOT</u> over tighten and hand tight only, **Do <u>not</u> use tools for this.**

When replacing filters please replace both at the same time!

6.2.5. Changing the Pre Filter / Mesh

The pre filter is a disc which is fitted in the top compartment of the main filter. To remove / replace simply lift off the top cap of the filter remove the mesh and old pre-filter place the new one into position refit the mesh on top (if in good working order replace if not). And snap the filter cover back on top. Do not use tools to remove or refit the filter cover

6.2.6. Attaching the Hose to the Blower Unit:

Align the pins of the Hose Bayonet connector with the slots in the air outlet of the blower. Push the Bayonet connector into the blower until it reaches the bottom of the hole and then twist in a clockwise direction until the locating pins clips into place.

Fitting the hose to the hoods is the same procedure.

6.2.7. Donning the Welding Helmet:

First set the Welding helmets rake and adjust the welding filter to suit (See the helmet's user instructions)

Lift the helmet to it's upper position.

Place over the head and adjust the headgear ratchet wheel by pushing it in and twisting until a satisfactory tightness is achieved.

Pull the elasticated chin guard downwards and at the same time pull the helmet down. Ensure the elasticated chin guard fits comfortably under the chin.



The Welding helmet is now ready for use

6.2.8. Donning the Softek hood:

Ensure that the blower unit is assembled, hose connected and the device is switched on.

Loosen the hood circumference adjuster clasp on the rear of the hood.

Don the assembled headgear/hood and adjust the cape, unrolling the shroud over any other PPE worn.

Tighten the hood circumference adjuster clasp until comfortable and secure.

6.3. Usage:

Switch on the unit by pressing the ON/OFF button on the control panel. The airflow can be either the low speed 180 1/min or the high speed 220 l/min. The speed denoted buy the lit LED and the fan symbol. You can change the speed by pressing the ON/OFF switch. Only by depressing the ON/OFF switch for several seconds will stop the unit.



The unit ensures a constant supply of air. The microprocessor inside the unit automatically regulates the motor speed to compensate the filter clogging and the battery state. If the microprocessor cannot keep the adjusted airflow, the unit will sound a 'beeping' alarm (an acoustic signal can be heard). At which point the user must check the blower unit. If possible, the microprocessor automatically reduces the airflow to the next lower level, if it fails to meet the lower level, the alarm will still sound. When the airflow falls below the minimum safe operating level, a second audible alarm joins the first and the unit will Vibrate. At this point, the user must stop working at once, leave the working environment and reach an area nominated to be safe and change the filter or recharge/change the battery.

To check the alarms it is necessary to bock off the air outlet with the palm of a hand or by another suitable means. Then with the unit switched on, the motor will try to compensate by increasing the speed until the microprocessor sounds the alarm as described above.

To check the battery: When first starting the unit, some of the LED's will flash red. Depending on the battery state, a number of the LED's flashing red will indicate the amount of charge – a fully charged battery will show all red LED's. It is recommended that only a fully charged battery should be used when starting a work shift.

With a fully charged battery in place, the unit should function normally, but if the audible alarm still sounds, the user must change the filter. If the problem still persists, see chapter 9 for additional suggestions.

7. Before use:

7.1 Inspection before use:

Each and every time before starting work check that:

• all components are in good condition with no visible damage (like holes, tears etc) Replace any damaged or worn parts. Carefully examine the air hose, seals and the face piece.

 \cdot there is a good connection between the air hose and the headpiece as well as the blower unit.

• there is sufficient air flow..(see 7.2.)

 \cdot the air is supplied through the whole respiratory system from the blower to the hood.

Charge the battery before the first use and check that the battery has sufficient charge prior to every subsequent use. (see 7.3.)

Ensure the alarms are working correctly (see 6.3)

7.2. Air Flow Test:

1. Disconnect the air hose from the Blower unit.



- 2. Insert the Airflow indicator into the air hose connector and keep the hose in vertical position at about the eye level.
- Switch the power unit on. The airflow is sufficient only if the ball indicator reaches the minimum flow rate level. If the indicator sinks is below the minimum flow rate level, it is necessary to charge the battery or change the filter. If the problem still persists, see chapter 9 for additional suggestions.

7.3. Batteries:

NOTE ! Batteries are delivered only partially charged. All batteries must be charged before they are used for the first time. The battery can be charged separately or on the blower unit.

It is imperative that the battery charger used to charge the product(s) is the one that was delivered to you at the time of receipt of the product(s) and is a manufacturer approved battery charger. Using any other battery charger will cause invalidation of any warranty protection and / or a serious risk to the health of the user operating the product(s) from fire or explosion.

The charger must not be used for any other purpose than that for which it was manufactured. Do not charge the battery in a potentially explosive atmosphere. The battery charger is intended for indoor use. It must be protected against damp. The charger controls the charging automatically. After the battery has been charged, the charger switches to the trickle charging regime and keeps the battery fully charged. The charging time is 4 to 6 hours.



7.3.1. Battery charging:

1. Check that the voltage of the electrical power supply is correct.

2.Check that the battery charger being used to charge the product(s) is the one that was delivered to you at the time of receipt of the product(s) and is a manufacturer approved battery charger.

3.Plug the charger into the socket. Either direct into the blower when the battery is fitted or into the battery directly.

4.Connect the battery to the charger. The socket of the battery is positioned on the back side. The charging state is indicated by a red LED diode light.

5.After charging has been completed, the trickle charging regime is activated: - red LED diode goes out, the green LED diode comes on at the moment of trickle charging.

6.Disconnect the charger from the power supply.

Do not leave the battery charger in the power supply if not in use!

7.3.2. Battery changing:

Removing the battery:

Locate the battery catch. Pull back the battery catch and at the same time the Battery can be





removed by lifting upwards.

Fitting the battery: Make sure the battery is the correct way up (as per 6.2) and then slide into the bower until the battery catch engages. It is essential that the battery catch is fully locked.

8. Maintenance / Cleaning:

The Blower unit, filter housing and head units must all be regularly cleaned to keep them in good working order.

For single users, the units can all be cleaned with a cloth moistened with luke warm water and soap.

For multiple users, the units should be disinfected when passed from one user to another.

Liquids must not be allowed to enter the workings of the blower unit or get on to the element of the filter.

Parts should be allowed to air dry. Under no circumstances should any solvents or abrasive cleaning agents be used. The unit must not be dried using hot air or radiant heat.

The unit should continue to provide protection to the designed specification for 2 to 3 years, when maintained in accordance with these instructions. Prior to each use the user should check that the unit is free from defects, such as cracks, split filters and hoses, cracked visors and helmet components as appropriate

9. Fault finding:

If there is a sudden change in air supply while using the **Airkem** system, it is necessary to check the following:

- That all parts of the air-supply system are assembled properly.
- The battery and its connector.
- Whether the charger is not faulty or malfunctioning (if so, diodes do not work).
- Filters and their clogging.
- That there is not a hole in the air hose.
- Whether the hood seal is not damaged.
- Whether the working time after a full recharging of the battery has not decreased (if so, it is necessary to replace the battery).

Fault	Probable reason	Recommendation
The blower unit does not work at	Entirely discharged battery.	Charge the battery.
all	(verify if the blower unit works with	(if problem persists, check the battery)
	another charged battery)	
	Faulty motor, circuit board or connector	Contact your supplier.
Low airflow	Blocked air hose or airduct.	Check and remove blockage.Check
	Leakage	all seals, connectors and the air hose.
		Make sure that air can not leak
		through holes or tears.
	Battery is not charged enough.	Charge the battery
		(if problem persists, check the battery)
	Blocked Filter or Pre Filter	Change the Pre – Filter. Then if the
		problem persists change the main
		filter.
Short operating time.	Clogged Filter.	Change the filters
	Battery is not charged properly.	Charge the battery.
		(If problem persists, check the battery)
Battery cannot be charged.	Battery contact is damaged.	Check the battery contact.
	Charger is faulty.	Contact your supplier.
Battery cannot be charged sufficiently.	Battery is worn out	Install a new battery.

10. Storage and Transportation:

When not in use or during transportation the blower and head units should be stored in the container in which they were provided, or other similar container, such that it is out of direct sunlight, not in contact with solvents and cannot be damaged by physical contact with hard surfaces/items. Do not store outside the temperature range of +0°C to +40°C or with humidity above 75%RH.

11. Helmets Certified with the system:

Navitek Part Number GT-2B01/203



Navishock Part Number KS-2B01/2020



Part Number: Premium KM8000,



Helmet information

Navitek and Navishock are designed to be used for heavy industrial and carry and impact rating of B medium energy impact, Both the Navitek and Navishock can be used for welding when fitted with the welding flip front.

The Navishock has a built in safety helmet designed to protect against impacts.

Softek are designed to be used in areas where respiratory protection is required but not impact or welding protection. Softek standard and Premium are both splash resistant.

Please ensure you are using the correct headtop for the correct hazard if in doubt please check your risk assessment or contact your health and safety officer.

12. List of Parts and Assembly Drawing:



ITEM NUMBER	DESCRIPTION	PART NUMBER
0	Airkem PAPR Complete system Navitek S4 P R SL	KM58S4P
0	Airkem PAPR Complete system Navitek S13 P R SL	KM58S13P
0	Airkem PAPR Complete system Navitek S314 P R SL	KM58S314P
0	Airkem PAPR Complete system Navitek Clear Visor P R SL	KM7700P
0	Airkem PAPR Complete system Navitek Shaded visor P R SL	KM7705P
0	Airkem PAPR Complete system Navishock S4 P R SL	KM97S4P
0	Airkem PAPR Complete system Navishock S13 P R SL	KM97S13P
0	Airkem PAPR Complete system Navishock S314 P R SL	KM97S314P
0	Airkem PAPR Complete system Navishock Clear visor P R SL	KM9700P

0 0 0 0 0 0 0 0 0 0 0 0	Airkem PAPR Complete system Navishock shaded visor P R SL Airkem PAPR Complete system Softek Premium P R SL Navitek complete Headtop S4 Navitek complete Headtop S13 Navitek complete Headtop S314 Navitek Clear visor complete Headtop Navishock complete Headtop S4 Navishock complete Headtop S13 Navishock complete Headtop S314 Navishock complete Headtop S314 Navishock clear visor complete Headtop Navishock shaded visor complete Headtop Softek Premium complete Headtop	KM9705P KM9800P GT58S4JC GT58S13JC GT58S314JC CR7700JC CT7705JC KS97S4JC KS97S13JC KS97S314JC KS9700JC KS9705JC KM8000
1	Face Seal for Navishock	CR7033
1	Face seal for Navitek	CR7032
2	Head Gear and Air Duct Assembly	CR7025
3	Hose and Cover Assembly	CR7010
4	Belt	CR7001
5	Euro Charger	CR7022
5	Universal Charger	CR7023
6	Battery	CR7020
6	Battery HD	CR7021
7	Blower Unit	CR7082
8	P R SL Filter	KM2050
9	Pre- Filter	KM2060
10	Mesh	KM2080
11	Red filter cover	KM2100
11	Black filter cover	KM2102

13. Technical data:

This powered respirator is light-weight and easy to handle. It is equipped with a replaceable particulate filter. The system affords reliable protection against particulates and aerosols.

Air flow: 1879 or 220 Liters/ min. Minimum flow rate 179 Liters/ min.

Weight with filter: 920 grammes

Operating temperature between 0°c and +40°c

Type of filter: P R SL

Type of Battery: Replaceable and rechargeable Li-Ion 7.4V/5200mAh

Charging Cycles >350

Visual alarm for low battery voltage.

Visual, audible alarms and Vibration alarms for insufficient flow rate (below 179L/min)

Actual Protection Factor (APF) 40

Noise level: 69.8dBA

Operating time with a new filter and fully charged battery in a clean environment. (6h39 n maximum flow rate.)

Note ! Operating time can be shortened in case of clogged filter under changed battery **14. Helmet Technical data:**

		Optical	Shade
Part number	Description	class	range
KM58S4P	Navitek S4 P R SL	1/1/1/2	9-13
KM58S13P	Navitek S13 P R SL	1/1/1/2	5-8/9-13
KM58S314P	Navitek S314 P R SL	1/1/1/1	5-8 / 9-14
KM97S4P	Navishock S4 P R SL	1/1/1/2	9-13
KM97S13P	Navishock S13 P R SL	1/1/1/2	5-8/9-13
KM97S314P	Navishock S314 P R SL	1/1/1/1	5-8/9-14

Notified body for module B and module D

Certification EN 12941:1998+A1:2003+A2:2008 Certified by: APAVE SUDEUROPE SAS Notified Body 0082 CS60193 13322 MARSEILLE CEDEX 16 France

European conformity mark (fulfils the requirement of the EU PPE regulation 2016/425

This PPE device complies with the following applicable EU standards: EN166B:2001 EN379:2003 + A1:2009 EN175B

Notified body: ECS GmbH as Notified Body 1883, Obere Bahnstrasse 74, 73431 Aalen, Germany



Symbols:

Refer to the manufacturers instruction manual	i
Store between 0 – 40 Degrees C	we
Best before 2018 / 05	Q H Den
Maximum storage Humidity <75%	

Filter Symbols:

- P For use against Particle
- R = this means the filter is reusable for more than one shift.
- S = means the filter protects against solid particles.
- L = means the filter protect against liquid particles.



14. Warranty:

The **Airkem** Blower unit is guaranteed for a period of 12 months from date of purchase against mechanical or electrical defects.

The Airkem battery is guaranteed for a period of 12 months from the date of manufacture.

The Company undertakes to exchange or repair without charge, any part found to be defective within this period. Alternatively and at it's discretion the Company may replace. This guarantee is subject to:-

The Airkem unit has been used solely for the purpose for which it is intended.

The Airkem unit has not been subject to misuse, accident, modification or repair.

N.B. In the event of a claim, contact the retailer from which the Airkem unit was purchased.

This guarantee does not cover normal wear and tear.

This guarantee does not affect your legal rights.

Manufactured By:

WELTEK

ZI DES BATTERSES

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The EU declaration of conformity for this product can be downed from the below link http://www.weltek.fr/Downloads/ce.aspx