



# **USER'S MANUAL**

**POWERED AIR PURIFYING RESPIRATOR**

**MK11**

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## 1. Field of application and conditions for use

The MK11 powered respirator is used for dust and particles only, not for gases or vapors and is used to reduce or remove resistance to inhalation during respiration by producing a constant airflow. The unit is designed with manufacturer's minimum design flow rate 150 litres, 180 litres or 220 litres per minute (the flow rate at which the equipment still will fulfill the requirements EN12941 classification). The actual working time will be about 8 hours.

## 2. Description

A complete powered respirator apparatus consists of:

- ◆ Blower unit, provided with a dust filter unit, supplied with a belt and comfort plate, a hose with a bayonet connector to Blower unit and a bayonet connector to mask.
- ◆ Rechargeable battery, which is placed inside the apparatus.
- ◆ Battery charger, fully automatic.
- ◆ The complete set is supplied in a carton carrier box.

## 3. Use

The MK11 unit supplies an overcapacity of clean and filtered ambient air, which is fed to mask. It allows the user to breathe in air without himself having to overcome the resistance of the filter. Considering that an adult person requires some 50 litre of air per minute, the overcapacity ensures an over pressure and thus a high degree of protection.

With a fully charged battery the unit will operate for about 8 hours. The unit contains a warning facility to warn the user against reduced air supply, due to clogged filter or low battery.

### 3.1 Prior to use

Before using the powered respirator, the user must ensure that all the conditions for safe use have been satisfied. See below in 8 for the applicable statutory regulations and rules.

- ◆ Check that the appropriate hose connector is fitted to the hose
- ◆ Check before use that the battery is sufficiently charged and that the free flow of air is not obstructed by a blocked hose or other causes.
- ◆ Check that a P3 filter is fitted correctly.
- ◆ Check that the lids of the battery and filter housing are closed.

#### 3.1.1 Usage limitations system

- ◆ The space in which the unit is to be used must contain at least 17% oxygen and must not contain any explosive gases or vapors. In enclosed spaces where there is a risk of oxygen deficiency, use of the unit should be avoided.
- ◆ In case of physical effort, it is possible that a temporary negative pressure occurs in the blower unit, resulting in a reduction of the protection factor of the system.
- ◆ Air speed in excess of 2m/s can affect the protection factor.
- ◆ The ambient usage temperature should be between the limits of -10 and +50
- ◆ Do not use the unit in circumstances where hazardous gases and/or vapors are present.



Warning

If the wearer of the respirator feels dizzy or uncomfortable or can smell/taste something, he should abandon the contaminated area immediately.

#### 3.1.2 Usage limitations filter element

- ◆ Used filter elements cannot be cleaned.



Warning

Never attempt to clean a filter element; the filter media may be damaged, resulting in loss of protection.

#### 3.1.3 Charging batteries

The battery is supplied in a non-full charged state; the charging time for a fully discharged battery is approximately 8 hours. The automatic setting of the charger prevents damage to the batteries when the charging time is exceeded.

Under normal circumstances the battery can be charged and discharged approximately 500 times.

After the battery is completely charged, the charger will switch over to trickle charging. This will expand the lifetime of the battery beyond 500 charge cycles. If the unit is used for more than 6 hours a day, it is recommended that use be made of a second battery.

#### 3.2 Switching on

The unit can be switched on by pushing the ON/OFF button for two seconds. A signal will be heard to indicate that the electronic control unit is working correctly.

#### 3.3 During use

This product has two kinds of method of air volume adjustment: knob type and push button. For knob type tag on high, medium and low three gears. Push button control way is: after the boot, self-checking system to run at full speed for 3 seconds. After the self-inspection, the corresponding LED lights up the air volume file mode, press the "ON OFF" key to "low - medium - high - low..." circulation air regulation. Note: the LED light in each air volume on 5 seconds, if need to adjust the air volume, after 5 seconds to press set key light LED, to press for an air

volume. If during use the air supply drops or fails entirely, leave the work area immediately. If a signal for low battery (2 beeps repeatedly) or a clogged filter element is given (a single short beep repeatedly), leave the workroom immediately, and check according to chapter 6.

### **3.4 After use**

Turn the apparatus off by pushing the ON/OFF button for 2 seconds.

#### **3.4.1 Cleaning and disinfecting**

After each session clean the unit, using a mixture of water and a mild detergent. Subsequently, rinse thoroughly with clean water. Do not use any solvent. During cleaning ensure that no water can enter the apparatus. The unit must not be immersed in fluid. Dry the unit with a cloth and/or leave it to dry in the open air.



For reasons of hygiene each operator should be equipped with their own hood or mask.

## **4. Maintenance and inspection**

Prior to use: functional checks for the user

After use: Cleaning and disinfecting of the blower unit; cleaning,

functional checking of the complete system.

Every 6 months: Cleaning and disinfecting of the blower unit; cleaning, functional checking of the complete system. Check the hose for leakage's and inspect the connector for damage.

## **5. Storage**

Before storing the unit in the carrying case, it should be thoroughly dry.

Do not keep soiled filter together with the unit and the mask in the same enclosed storage space.

Remove the filters from the unit and seal them with the earlier removed plugs.

## **6. Faults/troubleshooting**

### Blower unit fails to supply air:

- ◆ Battery is empty
- ◆ ON/OFF button is in "OFF" position
- ◆ ON/OFF button defective
- ◆ Plug connection defective
- ◆ Motor bearings defective
- ◆ Printed circuit-board defective

### Blower supplies insufficient air:

- ◆ Filter unit blocked
- ◆ Hose blocked or leaking
- ◆ Blockage or leakage in mask, air hood or breathing helmet
- ◆ Suction opening clogged

### Battery fails to charge:

- ◆ Power lead or plug connection defective
- ◆ Charger defective
- ◆ Battery defective or worn out

### Battery is too fast empty:

- ◆ Charger defect
- ◆ Battery defect or worn out

## 6.1 Repairs



Note

All other repairs should only be carried out by the manufacturer, or an authorized service and maintenance distributor.

## 7. Technical specifications

### 7.1 Blower unit

Airflow:	150 L/min,180L/min,220L/min
Motor Speed:	Electronically controlled
Alarms:	Electronically controlled, for low flow and lowbattery
Material:	Impact proof ABS
Color:	Black/blue
Weight (incl.filter. battery and hose):	1280 grams
Dimensions LxWxH:	235x185x85mm

### 7.2 Filter

Filter class:	P3
Material filter medium:	Efficient filtering low resistance papers
Material support disks:	ABS
Color:	Black
Weight:	135 grams
Dimension: DxH:	ø120x35mm

### 7.3 Battery

Type:	Lithium,rechargeable
Voltage:	12 Volt
Capacity:	4300 mAh

Operating time:	> 8hrs
Charging time:	1 hrs
Charging cycles:	> 500
Material case:	Impact proof ABS
Color:	Black
Weight:	315 grams
Dimensions:	87x43x63 mm

### 7.4 Battery charger

Type:	Fully automatic, overcharge protection
Primary voltage:	100-240 v, 50/60 Hz
Secondary voltage:	12.6 Volt
Color:	Black
Weight:	200 g
Dimensions:	110x48x30 mm

### 7.5 Hose

Length:	800 mm
Diameter(int):	32 mm
Connection:	Bayonet for blower unit and masks
Material:	HDPE

## 8. Statutory requirements and regulations

- 89/686/EC: European directive for Personal protective devices (89/686/EC).
- Norm EN 12941: Powered filtering devices incorporating a helmet or a hood
- Norm EN 12942: Power assisted filtering devices incorporating fill face masks, half masks or quarter masks.

## 9. General

AES Industrial Supplies Ltd cannot accept responsibility for damage incurred by the owner, or any other third party using this safety product which results either directly or indirectly from incorrect use and/or maintenance of the safety product, including use of the product for any purpose other than that for which it was supplied and/or the noncompliance or incomplete observance of the instructions contained in this user manual and/or in connection with repairs to the safety product which have not been carried out by us or on our behalf. Our General Sales and Supply conditions are applicable to all transactions. AES Industrial Supplies Ltd continually strive to improve products and reserves the right to change the specifications mentioned in this manual without prior notification.



The European guideline “Personal Protection Means 89/686/EG” stipulates that only inspected protective bearing the CE mark may be traded and used. Use of substitute, none-original spare parts, invalidates the CE approval and, also, all rights regarding guarantee, whereby the user and, also, the person initially marketing these spare parts, shall be punished by the relevant authorities of the EEC member countries, whereby additionally, the entire product will be excluded from use and withdrawn from the commercial transactions respectively. Original spare parts can be recognized by the affixed code number, supplemented with the manufacturer’s mark and the “CE approval” possibly supplemented with a year of applicability.

## 10. Guarantee

AES Industrial Supplies Ltd will repair, or if necessary, replace this product free of charge in the event of a material or manufacturing defect within 12 months of the purchase date, provided that the product has only been subjected to normal usage in accordance with the user manual. The guarantee is invalidated if the type or serial number marking is modified, removed or made illegible.

## 11. Supplier Details

All Max-Arc products are sold exclusively through AES Industrial Supplies Ltd, Olympic House, Collett, Southmead Park, Didcot, Oxon OX11 7WB. Tel: (0) 1235 510717 Email: [orders@aes-sales.com](mailto:orders@aes-sales.com)

