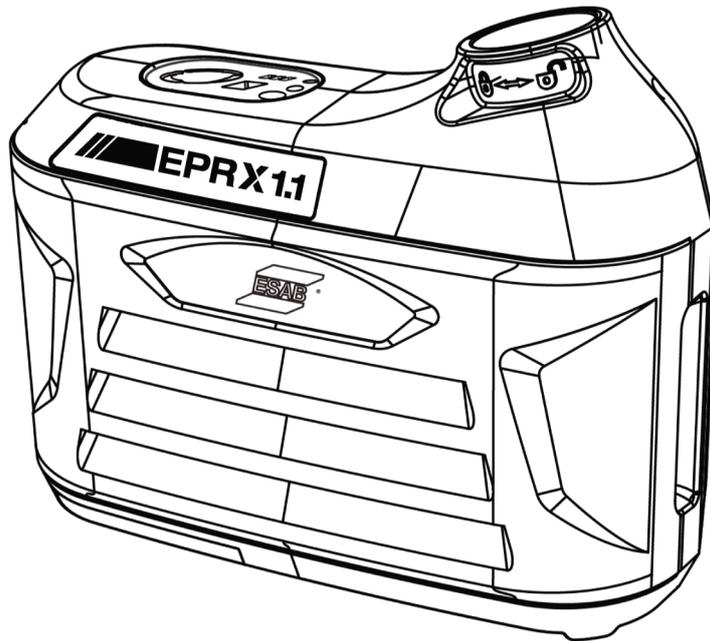




## ***EPR-X1.1***



### ***Powered Air-Purifying Respirator***

## **Instruction manual and Spare parts list**

PLEASE READ AND UNDERSTAND ALL INSTRUCTION BEFORE USE. RETAIN THIS MANUAL FOR FUTURE REFERENCE.

Complete User Manual at:

Manual Number: 0448307  
Revision Date: 2024-07-02  
Revision Number: B  
Language: English UK





## EU DECLARATION OF CONFORMITY

According to the Council Directive (EU) 2016/425 entering into force 9 March 2016  
This declaration of conformity is issued under the sole responsibility of the manufacturer.

**Type of equipment**

Welding Powered Air Purifying Respirators (PAPR)

**Type designation**

EPR-X1.1 0700500920

**Brand name or trademark**

ESAB

**Manufacturer or his authorized representative established within the EEA****Name, address, and telephone No:**

ESAB AB  
Lindholmsallén 9, Box 8004, SE-402 77 Göteborg, Sweden  
Phone: +46 31 50 90 00, Fax: +46 31 50 92 22

**The following harmonized standard in force within the EEA has been used in the design:**

EN 12941:2023 Respiratory protective devices. Powered filtering devices incorporating a helmet or hood. Requirements, testing, marking.

**EU Type Examination Certificate and Test Certificates issued by:**

Vyzkumny ustav bezpecnosti prace (VUBP)  
Jeruzalemska 1283/9, 110 00 Praha 1  
Czech Republic  
Notified body: 1024  
performed and issued the EU type-examination certificate

**By signing this document, the undersigned declares as manufacturer, or the manufacturer's authorized representative, that the equipment in question complies with the safety requirements stated above.**

Date

Signature

Position

2024-06-21

Peter Burchfield

General Manager /  
Equipment Solutions

CE 2024

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# 1 SAFETY

## 1.1 Meaning of symbols

As used throughout this manual: Means Attention! Be Alert!



### DANGER!

Means immediate hazards which, if not avoided, will result in immediate, serious personal injury or loss of life.



### WARNING!

Means potential hazards which could result in personal injury or loss of life.



### CAUTION!

Means hazards which could result in minor personal injury.



### WARNING!

Before use, read and understand the instruction manual and follow all labels, employer's safety practices and Safety Data Sheets (SDSs).



## 1.2 Safety precautions



### PROTECT YOURSELF AND OTHERS

Some welding, cutting and gouging processes are noisy and require ear protection. The arc, like the sun, emits ultraviolet (UV) and other radiation and can injure skin and eyes. Hot metal can cause burns. Training in the proper use of the processes and equipment is essential to prevent accidents. Therefore:

1. Wear a welding helmet fitted with a proper shade of filter to protect your face and eyes when welding or watching.
2. Always wear safety glasses with side shields in any work area, even if welding helmets face shields and goggles are also required.
3. Use a face shield fitted with the correct filter and cover plates to protect your eyes, face, neck and ears from sparks and rays of the arc when operating or observing operations. Warn bystanders not to watch the arc and not to expose themselves to the rays of the electric-arc or hot metal.
4. Wear flameproof gauntlet type gloves, heavy long-sleeve shirt, cuff less trousers, high-topped shoes and a welding helmet or cap for protection, to protect against arc rays and hot sparks or hot metal. A flameproof apron may also be desirable as protection against radiated heat and sparks.
5. Hot sparks or metal can lodge in rolled up sleeves, trouser cuffs, or pockets. Sleeves and collars should be kept buttoned and open pockets eliminated from the front of clothing.
6. Protect other personnel from arc rays and hot sparks with a suitable non-flammable partition or curtains.
7. Use goggles over safety glasses when chipping slag or grinding. Chipped slag may be hot and can fly far. Bystanders should also wear goggles over safety glasses.



### FUMES AND GASES

Fumes and gases, can cause discomfort or harm, particularly in confined spaces. Shielding gases can cause asphyxiation. Therefore:

1. Keep your head out of the fumes. Do not breathe the fumes and gases.

2. Always provide adequate ventilation in the work area by natural or mechanical means. Do not weld, cut or gouge on materials such as galvanized steel, stainless steel, copper, zinc, lead beryllium or cadmium unless positive mechanical ventilation is provided. Do not breathe fumes from these materials.
3. Do not operate near degreasing and spraying operations. The heat or arc can react with chlorinated hydrocarbon vapors to form phosgene, a highly toxic gas and other irritant gases.
4. If you develop momentary eye, nose or throat irritation while operating, this is an indication that ventilation is not adequate. Stop work and take necessary steps to improve ventilation in the work area. Do not continue to operate if physical discomfort persists.
5. Refer to ANSI/ASC Standard Z49.1 for specific ventilation recommendations.



### FIRES AND EXPLOSIONS

**Heat from flames and arcs can start fires. Hot slag or sparks can also cause fires and explosions. Therefore:**

1. Protect yourself and others from flying sparks and hot metal.
2. Remove all combustible materials well away from the work area or cover the materials with a protective non-flammable covering. Combustible materials include wood, cloth, sawdust, liquid and gas fuels, solvents, paints and coatings paper, etc.
3. Hot sparks or hot metal can fall through cracks or crevices in floors or wall openings and cause a hidden smoldering fire or fires on the floor below. Make certain that such openings are protected from hot sparks and metal.
4. Do not weld, cut or perform other hot work until the work piece has been completely cleaned so that there are no substances on the work piece which might produce flammable or toxic vapors. Do not do hot work on closed containers, they may explode.
5. Have fire extinguishing equipment handy for instant use, such as a garden hose, water pail, sand bucket, or portable fire extinguisher. Be sure you are trained in its use.
6. Do not use equipment beyond its ratings. For example, an overloaded welding cable can overheat and create a fire hazard.
7. After completing operations, inspect the work area to make certain there are no hot sparks or hot metal which could cause a later fire. Use fire watchers when necessary.



#### CAUTION!

This product is solely intended for arc welding.



#### CAUTION!

#### ADDITIONAL SAFETY INFORMATION

**For more information on safe practices for electric arc welding and cutting equipment, ask your supplier for a copy of "Precautions and Safe Practices for Arc Welding, Cutting and Gouging", Form 52-529.**

The following publications are recommended:

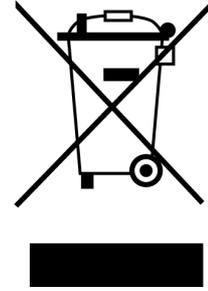
- EN 12941:1998/A2:2008
- EN 166:2002
- EN 175:1997
- EN 379:2003
- ANSI/ASC Z49.1
- OSHA 29 CFR 1910 - "Safety and health standards"
- CSA W117.2 - "Code for safety in welding and cutting"
- CGA Standard P-1, "Precautions for Safe Handling of Compressed Gases in Cylinders"
- ANSI Z87.1, "Occupational and Educational Personal Eye and Face Protection Devices"

**NOTE!****Dispose of electronic equipment at the recycling facility!**

In observance of European Directive 2012/19/EC on Waste Electrical and Electronic Equipment and its implementation in accordance with national law, electrical and/or electronic equipment that has reached the end of its life must be disposed of at a recycling facility.

As the person responsible for the equipment, it is your responsibility to obtain information on approved collection stations.

For further information contact the nearest ESAB dealer.



### 1.3 Safety instructions for PAPR system

Use the ESAB PAPR system during welding in unconfined spaces, strictly in accordance with this instruction manual and the instructions supplied with the corresponding helmets.

Do **not** use the unit:

- When the blower unit is switched off. Little or no respiratory protection is to be expected. Rapid buildup of carbon dioxide and depletion of oxygen may occur in the head unit.
- In an atmosphere that poses an immediate health or hygiene hazard and/or has less than 19.5% oxygen content, or contains unknown substances.
- In confined spaces or unventilated areas such as tanks, pipes and canals.
- Near flames and/or sparks.
- In areas with danger of explosion.
- In areas with high winds.
- If the blower unit malfunctions.

To ensure the unit is functioning properly, do **not**:

- Alter or modify the unit or the particle filter in any way.
- Touch any of the moving parts.
- Allow water or other liquids to enter the impeller chamber, the filter or battery compartment.

Make sure:

- That blower moving parts are not blocked and are free to move.
- That the approved air-equipped helmet and associated shroud fit perfectly. The efficiency of the system is only sufficient in this case. The protective factor of the complete system is reduced if the seal of the headpiece is not fitted properly, for example if long hair or facial hair is extending into the seal line.
- To position the blower unit in a way that minimizes the risk of the air-equipped welding helmet hose becoming caught up during use.

Note that:

- At elevations above 5,000' (1500 meters), the PAPR will provide reduced air pressure of at least 5%, with the affects increasing as elevation increases.

Leave the contaminated area immediately and, if needed, seek medical advice 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.

## 1 SAFETY

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- Contaminant can be smelled or tasted inside the head unit.
- In the unlikely event of an allergic reaction to the air-helmet materials.

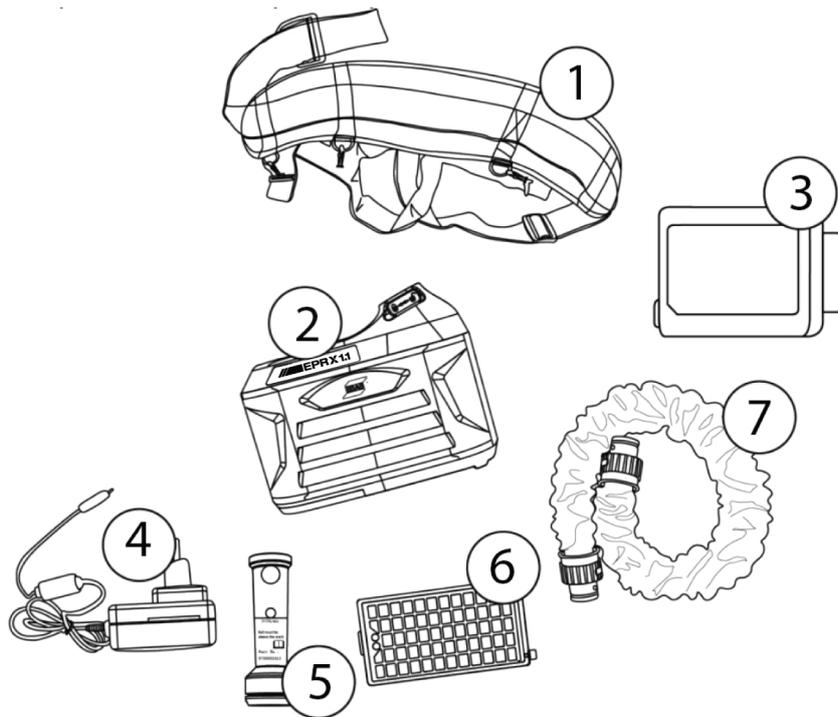
## 2 INTRODUCTION

The **EPR-X1.1** is a powered air-purifying respirator intended only for use with ESAB air-equipped welding helmets: Sentinel A60; Sentinel A50; Savage A50LUX; Savage A40; G40; G50; G30; F20.

**ESAB has an assortment of welding accessories and personal protection equipment for purchase. For ordering information contact your local ESAB dealer or visit us on our website.**

### 2.1 Equipment

The powered air-purifying respirator is supplied with:



- |  |   |
|--|---|
| 1. Waist belt and the shoulder harness | 5. The air flow tester  |
| 2. EPR-X1.1 blower assembly            | 6. Main HEPA filter assembly (includes pre-filter and spark arrestor - not shown) |
| 3. Rechargeable lithium ion battery    | 7. The tube, its flame-retardant cloth and both end fittings                      |
| 4. Battery charger                     |   |

If any of the components are not included in your kit, contact ESAB immediately.

### 2.2 Marking explanation

#### Powered filtering device

- EN 12941:1998 Respiratory protective devices- Powered filtering devices incorporating a helmet or hood- Requirements, testing, marking.
- TH3 P R (SL) classification of the unit. "TH3" defines the level of protection, "P R" indicates the filter type ("P"= Particle filter, "R"= Reusable type of particle filters) and "SL" reflects the filter has been tested against particles of liquid and solid matter.

#### Warning indication

This EPR-X1.1 PAPR has both sound and vibration alarm function. Each grid stands for a period of 100ms. Gray is the beep sound and blank grid is a quiet period. If several continued grids are in gray then there is a continuous beep sound. For example, when the current is overloaded, the system sounds like beep~beep~beep~~~~.

## 2 INTRODUCTION

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100 ms per grid											
	0	1	2	3	4	5	6	7	8	9	10
Install the battery	X										
Turn on the system	X										
Change air flow speed	X										
Turn off the system	X	X	X	X	X						
Current overload	X		X		X	X	X	X	X		
Air outlet jam	X		X	X	X	X	X				
Over heat	X		X		X		X	X	X	X	X
Low battery	X		X								
Filter jam	X		X		X						

## 3 TECHNICAL DATA

<b>Dimensions l × w × h</b>	210 × 169 × 78 mm
<b>Weight</b>	Complete unit <1.2 kg
<b>Particle filter</b>	1 × TH3 P R SL
<b>A1B1E1 P3 combination filter</b>	Available separately
<b>Air flow</b>	<p>Manufacturer minimum design flow rate: 170 L/min</p> <p>Airflow:</p> <p>Level 1: &gt;170 L/min</p> <p>Level 2: 190 L/min</p> <p>Level 3: 210 L/min</p>
<b>Noise level</b>	Max 75 dBA
<b>Operating temperature range</b>	23°F to 131°F (-5°C to 55°C)
<b>Storage temperature range</b>	14°F to 131°F (-10°C to 55°C)
<b>Battery type</b>	Rechargeable Li-ION 4000 mAh
<b>Expected battery operation time</b>	<p>Level 1 &gt; 10h</p> <p>Level 2 &gt; 8h</p> <p>Level 3 &gt; 6h</p>
<b>Battery charging time</b>	3.5 hours
<b>Battery life</b>	500 charges (run time dependent on air flow rate and filter load)
<b>LED light</b>	<p>Air flow level</p> <p>Battery capacity</p> <p>Filter status</p>

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## 4 INSTALLATION

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### 4.1 Installing and replacing the filter

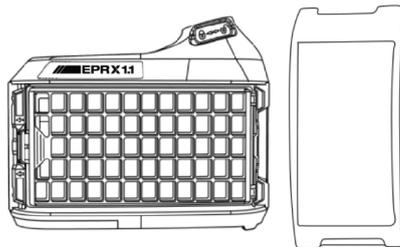
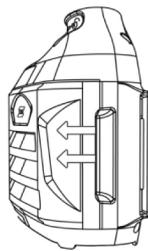
If the filter/pre-filter is wet or heavily loaded with particles or damaged, it should be replaced.



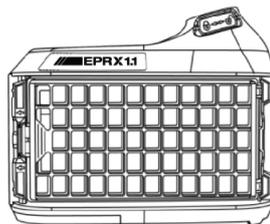
**NOTE!**

Never attempt to clean the filter by any means, it can damage the filter media easily. The pre-filter should be intact without any tears or cuts.

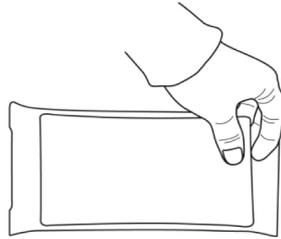
1) Open and remove the filter cover.



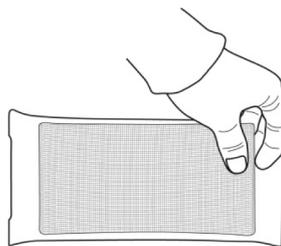
2) Remove the used filter by pressing the filter latch and lifting it out from cover.



3) Remove the pre-filter.



4) Clean the spark arrestor if necessary.



5) Install a new filter by reversing the actions in steps 2 and 3.

## 4.2 Installing and charging the battery



### CAUTION!

The charger must not be used for anything else than it was designed for. Do not charge the battery in a potentially explosive area. The charger must only be used indoors.



### NOTE!

The battery is partially charged when delivered. It is recommended to charge the batteries to 100% before the first and each use.

The charge time is 3 to 4 hours.

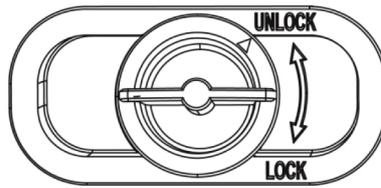
The charger regulates the charge automatically, once the battery is fully charged, it will maintain it at a 100% (floating charge).

The battery will discharge itself after long storage periods. Always charge the battery if the device was stored for more than 15 days. When the battery is new or has been stored for more than 3 months, charge it and discharge it at least twice in a row to resume the nominal/rated charge capacity.

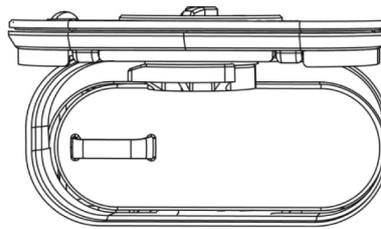
## 4 INSTALLATION

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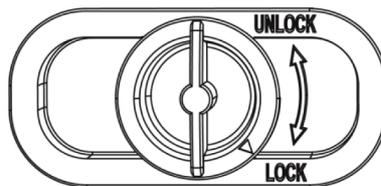
- 1) Rotate the battery house cover knob to UNLOCK position and pull battery house cover out.



- 2) Insert battery into battery house.



- 3) Close battery house cover and turn the knob to LOCK position



- 4) Take battery out from battery housing and charge battery.



### Charging the battery

- 1) Take battery out from battery housing.

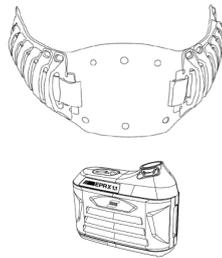
## 4 INSTALLATION

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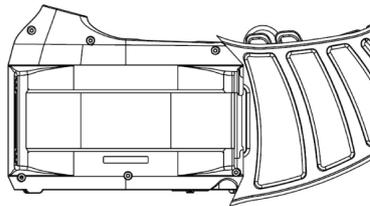
- 2) Connect the battery to the charger using the input located at the top of the battery.
- 3) Connect the charger to the main power source.
- 4) The state of charge is displayed via a red LED on the main power source charger.
- 5) Once the charge is finished, the floating charge becomes active: the red LED switches off and a green LED switches on.
- 6) Disconnect the charger from the outlet (do not keep the charger plugged to the main power source if it's not in use).

### 4.3 Installing the respiratory system on the belt

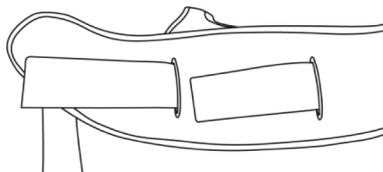
- 1) Place belt and PAPR unit at correct position.



- 2) Unlock the hook and loop fastener and pass through the blower assembly's belt loops.



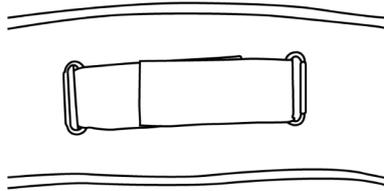
- 3) Pass the fastening belt through the gap on belt.



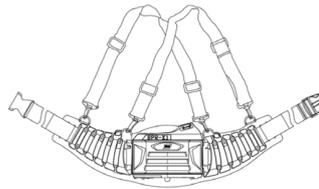
## 4 INSTALLATION

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- 4) Attach the hook and loop fastener onto the belt.



- 5) Attach the harness to the belt's four plastic rings.

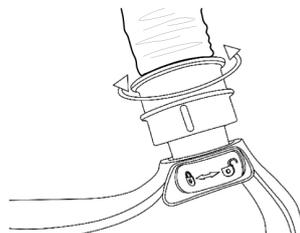


### 4.4 Connecting the tube

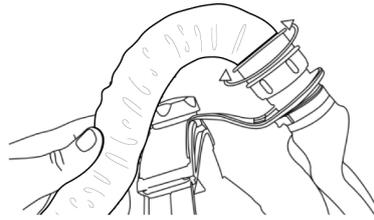
- 1) Install the fire protecting sleeve over hose.



- 2) Connect the air tube to the respiratory system and twist it clockwise to lock its position.



- 3) Connect the other end of the tube to the headgear in the same way.



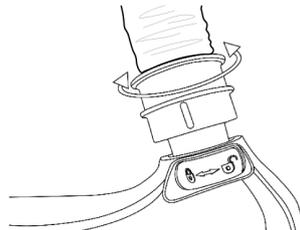
**NOTE!**

Check that the respiratory tube is securely connected. If the tube is broken, replace it.

## 4.5 Testing the air flow

The airflow must be tested before use. If the ball can't reach the minimum flow level, don't use the system. Change the filter or the battery and retest the air flow.

- 1) Connect the breathing tube to the blower unit and twist it clockwise to lock it.



- 2) Insert the airflow tester at the top of the tube.



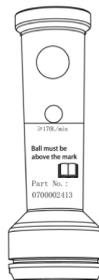
## 4 INSTALLATION

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- 3) Press the ON button and maintain the tube in a vertical position at eye height.



- 4) The air flow is sufficient if the marble reaches the minimum flow level O.



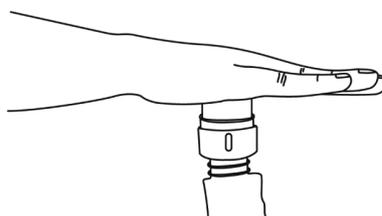
### 4.6 Testing the air flow alarm

If the alarm does not work, repair or change respiratory system.

- 1) Remove the tube from the helmet and press the ON button.



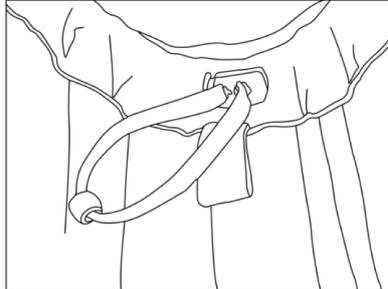
- 2) Cover the air output with your hand and wait approximately 45 seconds.



## 4.7 Fitting the face seal

The face seal must be positioned properly, otherwise, the protection factor will be incorrect.

- 1) Adjust the tightness of the face seal and put on the head top.



- 2) Adjust the headgear to suitable tightness (push and turn left to loosen, turn right to tighten).



## 5 OPERATION

General safety regulations for handling the equipment can be found in the "SAFETY" chapter of this manual. Read it through before you start using the equipment!



### NOTE!

Users of this respiratory device must be properly informed about its correct wearing and use.



### NOTE!

The respiratory system must be operated in the temperature range of -5°C to +55°C and relative humidity less than 90% RH.

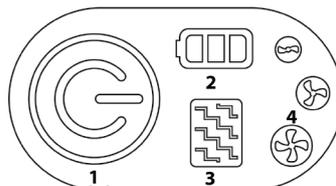
Before each use:

- Inspect the respiratory system for damage and verify it operates properly.
- Test air flow using the included air flow test meter to verify it is providing an adequate volume of air.

Continuously wear the respiratory system and do not remove the helmet or turn off the air filter unit until outside the contaminated area. Otherwise, there is a risk of high concentration of CO<sub>2</sub> and oxygen level in the helmet will fall, resulting in little or no protection.

If you are not sure about the concentration of pollution, or about equipment performance, consult an industrial safety engineer or EHS manager.

### 5.1 Buttons and indicators



- |                      |                     |
|----------------------|---------------------|
| 1. ON/OFF button.    | 3. Filter condition |
| 2. Status of battery | 4. Airflow level*   |



### NOTE!

\*Airflow is limited to the **lowest** fan speed when using the APR-X1.1 with the optional A1B1E1 P3 combined filter (available separately).

### 5.2 Functionality

#### Operation

Press and hold the ON/OFF button for three seconds.

Turn on the device and then press the ON/OFF button once again.

#### Result

The device turns on/off. The air flow is at level 1 (~170L/min).

The air flow is at level 2 (~190L/min).

**Operation**

Turn on the device and then press the ON/OFF button two times.

Turn on the device and then press the ON/OFF button three times.

**Result**

The air flow is at level 3 (~210L/min).

The air flow reverts to level 1 (~170L/min).

## 6 MAINTENANCE

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**NOTE!**

Regular maintenance is important for safe and reliable operation.

Inspect the equipment daily and always check it for any sign of malfunction - make sure that:

- The filter is changed if it is broken, or if it is blocked and does not give enough airflow.
- The breathing tube is changed if it is broken or has creases.
- The battery is charged when the low battery alarm sounds.
- External surfaces are clean. Use a soft cloth to wipe, do not use water or other liquids.
- The pre-filter is replaced when the main filter is replaced.

### 6.1 Storage

The respiratory system must be stored in a dry, clean area, in the temperature range of -10 °C to +55°C and relative humidity less than 90% RH. If the equipment is stored at temperature below 0°C, the battery must be allowed to warm up to achieve full battery capacity.

The equipment must be protected from dust, particles and other contamination.

If the equipment is not used for a long time, the battery should be fully charged, removed from respiratory system unit and stored separately.

Transport the equipment with original packaging box and away from direct sunlight.

## 7 TROUBLESHOOTING

Perform these checks and inspections before sending for an authorised service technician.

Type of fault	Possible cause	Corrective action
Airflow level indicator blinks and alarms sounds	Motor is stuck	Check and remove physical obstruction and restart the system. Return to dealer if problem continues
	Motor is damaged	
	Blower structure failure caused by outer force	
	Circuit failure	
Airflow level is only available at the lowest speed setting	A1B1E1 P3 filter is installed	None. This is normal operation when using the A1B1E1 P3 combined filter
Status of battery indicator blinks red and alarm sounds	Low battery	Charge the battery
Filter condition indicator blinks and alarm sounds	Filter blocked	Remove obstruction, change filter
	Tube blocked	Clean tube
Status of battery indicator blinks green and alarm sounds	High temperature of the battery	Power unit off and allow it to cool
No air flow, no alarm	No power	Charge the battery
	Battery contact damaged	Check battery contact
Battery run time is too short	Battery is not fully charged	Charge the battery
	Filter blocked	Remove obstruction, change filter
	Battery is damaged	Replace battery
Air supply to hood smells unusual		Leave current area immediately.
	Filter broken	Replace filter
	Tube broken	Replace tube
	ADF helmet broken	Replace ADF helmet
Supply insufficient air to hood	Breathing tube broken off	Check tube connection to hood and respiratory system unit
	Breathing tube broken	Replace breathing tube
	Filter is blocked	Remove obstruction, change filter

## 8 ORDERING SPARE PARTS

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**CAUTION!**

Repair and electrical work should be performed by an authorised ESAB service technician.  
Use only ESAB original spare and wear parts.

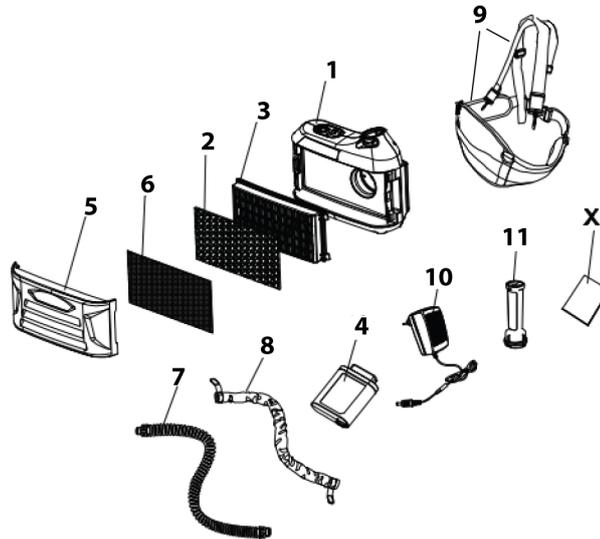
EPR-X1.1 is designed and tested in accordance with the requirements of PPE Regulation **2016/425** and European Standard **EN 12941: 1998+A2:2008 class TH3 P R S L**. EPR-X1.1 is designed to provide a supply of filtered air via a breathing tube to a helmet or a hood. The equipment can be used in any environment that requires a class TH3P breathing protection device. It protects against particulate contamination. On completion of service or repair work, it is the responsibility of the person(s) performing the work to ensure that the product still complies with the requirements of the above standards.

Module B Notified Body: Vyzkumny ustav bezpecnosti prace, v. v. i., Jeruzalemska 1283/9, 110 00 Praha 1, Czech Republic (Notified body number 1024)

Spare parts and wear parts can be ordered through your nearest ESAB dealer, see [esab.com](https://www.esab.com). When ordering, please state product type, serial number, designation and spare part number in accordance with the spare parts list. This facilitates dispatch and ensures correct delivery.

## 9 APPENDIX

### 9.1 SPARE PARTS



Item	Ordering no.	Denomination
	0700500920	EPR-X1.1 PAPR system
1	0700500921	EPR-X1.1 PAPR blower unit
2	0700500902	EPR-X1.1 PAPR pre-filter
3	0700500903	EPR-X1.1 PAPR P3 filter
4	0700500904	EPR-X1.1 PAPR battery
5	0700500905	EPR-X1.1 PAPR filter cover
6	0700500906	EPR-X1.1 PAPR spark arrestor
7	0700500907	EPR-X1.1 PAPR breathing tube
8	0700500908	EPR-X1.1 PAPR FR fabric tube cover
9	0700500909	EPR-X1.1 PAPR waist and shoulder harness
10	0700500910	EPR-X1.1 PAPR universal battery charger
11	0700002413	EPR-X1.1 PAPR air flow tester
	0700500914	EPR-X1.1 A1B1E1 P3 combined filter (optional)





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