



ExFlow E4-T

Powered Air Purifying Respirator User Instructions



TECMEN

Read all instructions and warnings before use. Users must understand this booklet prior to use. Keep these User Instructions for future reference. If you have questions regarding these products, just feel free to let Tecmen know.



WARNING



Do not disassemble or charge the battery pack in hazardous location.

USE FOR

- TECMEN ExFlow Powered Air Purifying Respirator (PAPR) is designed to be used in conjunction with approved headtops, creating a comprehensive system that fully complies with the requirements set forth in EN12941 (Respiratory equipment-Powered Air Purifying Respirator). With the aid of a motor, the PAPR system effectively overcomes air resistance, ensuring the delivery of clean air to the headtop via the breathing tube, after external airborne contaminants have been filtered. A range of diverse filter accessories is available to provide protection against specific pollutants.

ExFlow PAPR offers adjustable airflow, allowing users to tailor the airflow to their precise requirements. Should the PAPR system experience low battery levels or insufficient airflow, dipping below the minimum prescribed rate, an automatic alarm will activate. The ExFlow PAPR system assembly is certified for use in explosive environments. For further information concerning APEX, please refer to the device markings and the technical section provided below.





DO NOT USE FOR


- In environments where airborne contaminants or contaminant concentrations are unknown, or in locations that could immediately result in severe injury or fatality.
- In areas with an oxygen concentration less than 17% (please note that the standard oxygen concentration may vary depending on different countries).
- Please leave the contaminated area immediately if any of the following conditions occur:
 - a. Any part of the system becomes damaged.
 - b. Airflow into the respirator decreases or stops.
 - c. Low airflow or low battery alarm is activated.
 - d. You feel dizzy or aching.
 - e. You can smell or taste the contaminants.
- Do not alter or modify this product. Use only original replacement parts manufactured by TECMEN.
- To reduce the potential ignition risk in flammable or explosive atmospheres, batteries must only be changed in known non-hazardous areas. Do not bring the batteries into a potentially flammable or explosive environment.
- The battery charger is not intrinsically safe. Do not disassemble the product, charge the battery pack or replace the battery in hazardous locations.
- Only charge the product with the original charger.

NOTICE

For effective protection against hazardous airborne contaminants, choose the appropriate product sets, provide proper user training, and follow correct product usage and maintenance procedures. Failure to comply with the instructions in the user manual may result in severe health damage or permanent disability when using these respiratory products in contaminated areas.

MARKINGS ON THE EQUIPMENT

| | |
|---|---|
|  <p>Read the instruction before use.</p> |  <p>Recycle</p> |
|  <p>Shall be disposed of as electronic waste.</p> |  <p>Expiry date year / month</p> |



Model: ExFlow E4-T
Powered Air Purifying Respirator

CE 0035

TÜV 22 ATEX 8883 X
IECEX TUR 22.0053 X

Ex II 2 G
II 2 D
I M2


Ex ib IIC T4 Gb
Ex ib IIIB T135°C Db
Ex ib I Mb
-20°C≤Tas+55°C

CE2834 **EAC**

Part No.: ExFlow E401
EN 12941 TH3 P R SL
AS/NZS1716:2012

Operating temperature:
23°F to 131°F (-5°C to 55°C)
TP TC 019/2011 12.4.234-2012
Produced by TECMEN
Details as per Instruction Manual.

Certified Product






ASINZS 1716:2012

WARNING - DO NOT DISASSEMBLE OR CHARGE THE BATTERY PACK IN HAZARDOUS LOCATION

Serial No.:

Manufacture date:

TECMEN Electronics Co., Ltd

No.21 North Liuzhou Road,Nanjing 210031, Jiangsu, CHINA

USE IN POTENTIALLY EXPLOSIVE ATMOSPHERES

TÜV 22 ATEX 8883 X – ATEX Certification Number
IECEX TUR 22.0053 X – IECEX Certification Number

Ambient temperature range: -10°C to +50°C

Ex Marking:

Mining susceptible to firedamp (Group I)

Ex ib I Mb

ib – intrinsic safety for Equipment protection level Mb

Non-Mining Gas atmospheres (Group II)

Ex ib IIC T4 Gb

ib – intrinsic safety for Equipment protection level Gb

IIC – Gas apparatus group

T4 – Classification of maximum surface temperatures for Group II

Non-Mining Dust atmospheres (Group III)

Ex ib IIIB T135°C Db

ib – intrinsic safety for Equipment protection level Db

IIIB – Dust apparatus group

T135°C - maximum surface temperatures for Group III

“Specific Conditions of Use” :

1. When used in Group I locations, the Powered Air-Purifying Respirator shall not be exposed to Chemicals.
2. Only change battery module in a non-hazardous area.
3. The accessories is not within the certification scope of this certificate, such as breathing tube, belt, etc. Refer to the instructions manual for details.

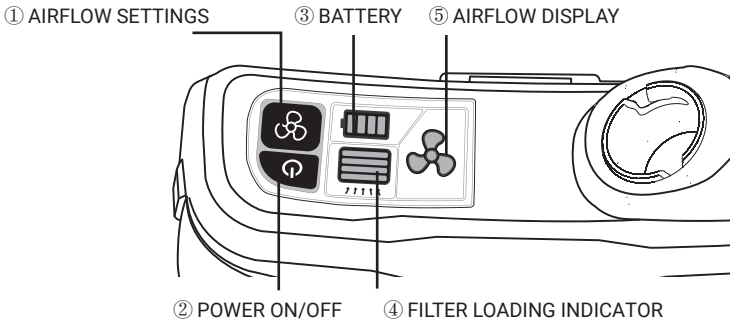
Device markings

- Refer to the headset user instructions for marking information.
- Refer to the “Description and approvals of P3/P3+gas filter” section on page 6 for marking information.
- The marking of TECMEN ExFlow E4-T PAPR motor/blower is EN 12941.

DESCRIPTION & ASSEMBLY

User Interface Guide

1. Airflow settings
Short-press the button to change airflow settings
2. Power on/off
Long-press for 3 seconds
3. Battery
Display the remaining battery of the respirator
4. Filter loading indicator
Display the real-time filter loading of the particle filter
5. Airflow display
Display the real-time airflow setting



Assembly

Filters

1. Inspect the filter before initial or re-installation. Replace damaged parts immediately. Thoroughly inspect the outer plastic shell, including corners and connection points, and replace any damaged parts promptly. If the filter has been mishandled or dropped, re-inspect fully.
2. Optional filters are available for different work requirements. Insert the filters into the slots on the edge of the filter cover, ensuring that the bottom tabs are securely snapped into place. Follow the installation order as specified in the diagram below (pre-filter, particle/combined filter). Always ensure that the filters are correctly installed, and close the outer cover properly.

①: Pre-filter → ②: Particle/Combined filter

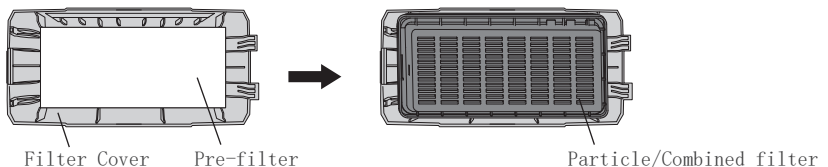


fig.1

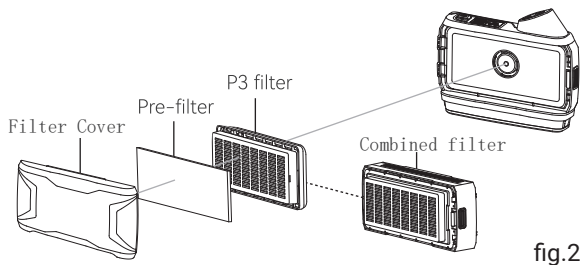


fig.2

Disassemble (only in pollution-free areas)

1. Switch off the product completely before disassembling.
2. Press the push button to disconnect the cover. Reinstall the filter that needs replacement (See fig.2).

Battery

- Press the battery indicator button to display the current charging status. The bars illuminated show the state of charge.
- Insert the battery vertically into the charger base and connect it to the power supply. The 100% indicator will illuminate to indicate a fully charged status (See fig.4).

| | | |
|---|----------------|--|
| | WARNING | |
| <ul style="list-style-type: none"> • Do not disassemble the battery pack in hazardous location. • Only charge the battery pack with charger adaptor from <i>TECMEN ELECTRONICS CO., LTD</i> | | |

- When the battery is low, the battery indicator will flash, and an audible alarm will sound. At this point, please immediately go to a safe workplace. Use the special inner hexagonal spanner provided to remove the battery from the blower (See fig.3).

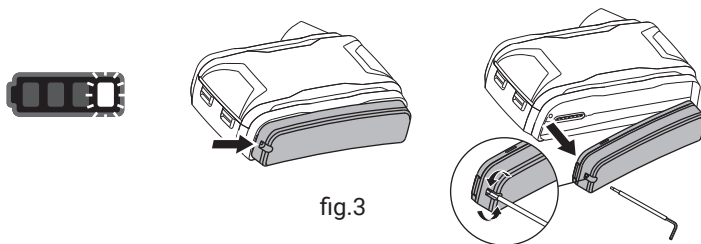


fig.3

Battery charger

Left side indicators: 30%, 80%, 100% charging status.

1 Right side indicator: green for normal charging, red for battery box issue (See fig.4).

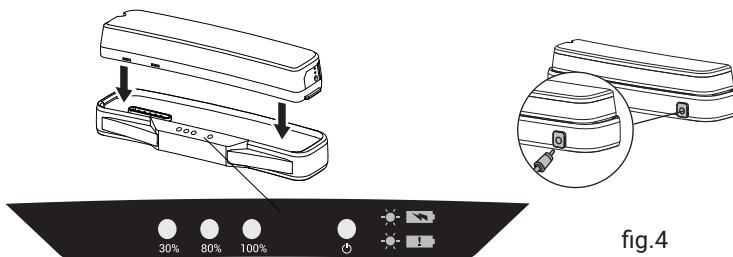


fig.4

Belt

1. With the filter and filter cover installed, position the motor/blower face down on a table with the outlet facing away from you.
2. Align the 4 keyholes on the belt with the 4 metal buttons at the back of the blower unit. Push the belt upward to slide the metal buttons into place, ensuring the plastic tab at the bottom of the blower snaps into the slot on the belt.
3. Gently tug on the belt to verify it is securely attached to the motor/blower unit.
4. Attach the soft pad onto the belt using the 8 snap buttons (See fig.9)
5. Once the blower unit is donned, adjust its position until it feels comfortable and stable.

Note: To remove the belt assembly, follow the reverse steps.

Shoulder strap

Installing the shoulder strap

1. Insert the round lock at the end of the shoulder strap into the slot located just above the back of the blower. You'll know it's securely installed when you hear a "click".
2. Position the shoulder straps as desired and then attach the two hooks to the corresponding holes on each side of the belt (See fig.10)

Removing the shoulder strap

1. Release the chest buckle.
2. Detach the shoulder strap hooks from the respective holes on both sides of the belt.
3. Press and hold the ring on the top of the blower unit's back, then pull out the round lock.

Breathing tube

1. Insert the end of the breathing tube with the bayonet fitting into the air outlet of the motor/blower.
2. Twist the breathing tube to the right to lock it into place.
3. Refer to the User Instructions for the headtop to be used for connecting the breathing tube to the headtop.

Description and approvals of P3/P3+gas filter

| PROPERTY | UNIT | RANGE |
|---|------------------|------------|
| DOP Smoke Penetration DOP (0.3µm) | % (@5.3cm/s) | 0.015 |
| Basis Weight | g/m ² | 70 |
| Caliper-7.3psi | mm (@50kPa) | 0.35 |
| Air Flow Resistance | % (@5.3cm/s) | 289 |
| Tensile strength MD CD | kN/m | 1.2 0.6 |
| Gurley Stiffness MD | mg | 800 |
| Ignition Loss | % | 5.0 |
| Water Repellency | kPa | 6.2 |

INSPECTION



WARNING



It is mandatory to perform a thorough inspection of the following items before using the respirator. Failure to do so may cause fire or explosion or could adversely affect respirator performance and result in injury, sickness, or death.

The PAPR system

Check if the respirator is in good condition and properly assembled, ensuring there are no signs of wear or damage. Any damaged or defective parts must be replaced only with original replacement parts manufactured by TECMEN. Before use, please closely inspect the headtops. Make sure the pre-filter and particle filter (or combined filter) are properly installed and securely latched.

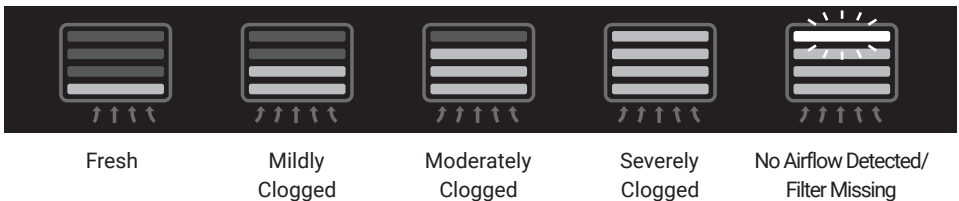
Battery

Thoroughly inspect the outer shell, connection points, the electric contact. Ensure the battery is securely connected to blower unit. Replace the battery if there is any sign of damage.

Make sure the battery is fully charged before each use. Charge the battery before the first use following the provided procedure.

Filter loading

The service life of the filter is influenced by the specific environment in which it is used. Filter loading is indicated by the 4 LED bars, as illustrated in the diagram. When the filter becomes clogged, the device will flash, emit an audible alarm and vibrate, alerting the user to leave the contaminated area immediately and replace the filter.



Breathing tube

Ensure the breathing tube is undamaged and securely attached to both the blower unit and the headtop. Replace the breathing tube if any damage is noted.

Alarm system

- Ensure the alarm system and airflow indicator are functioning properly before use, and check that the particle filter and battery are correctly installed with sufficient remaining battery.
- Attach the airflow indicator to the air duct of the blower unit. To test the alarm, switch on the blower unit and cover the air duct of the airflow indicator. You will hear an audible alarm and see the green light flashing. The alarm should stop if you remove your hand (See fig.5)

Airflow check

- TECMEN ExFlow E4-T PAPR is pre-calibrated to provide the necessary airflow. It compensates for variations in air density caused by elevation and temperature changes.
 - Use the airflow indicator to confirm that the minimum required airflow is achieved before use. Run the PAPR for 1 minute to establish a stable airflow, then insert the airflow indicator into the outlet of the blower unit. Position the airflow indicator vertically and ensure that the bottom of the floating ball remains at or above the minimum airflow indication line.
 - Keep the airflow indicator vertically aligned with your eye level for an accurate reading. Wait for 3-5 minutes until the floating ball stabilizes. Check if the floating ball is at or above the marking on the airflow indicator (See fig. 6)
- *Please note that the airflow indicator may not provide accurate readings when used at low-altitude locations.

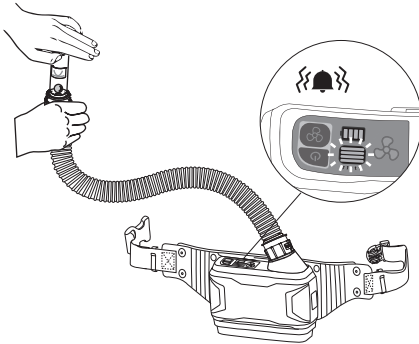


fig.5

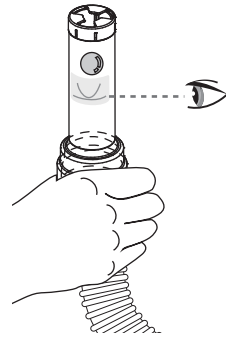


fig.6

OPERATING INSTRUCTIONS

Donning

- Attach one end of the breathing tube to the headtop and the other end to the blower unit's outlet. Twist the bottom end of the breathing tube to securely lock it into place (See fig.7).
- Tighten and secure the belt or shoulder strap according to the instructions provided in the diagram (See fig.8).

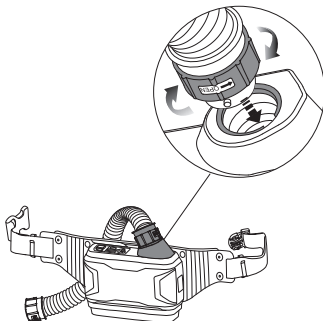


fig.7

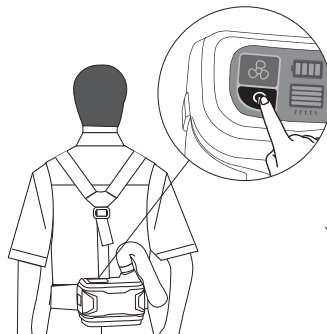


fig.8a

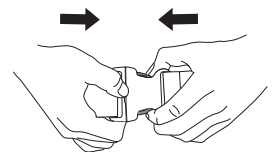


fig.8b

- Wear and adjust the headtop according to the the user instructions provided with the applicable headtop.
- Press and hold the on/off button for 3 seconds to power on the blower unit .

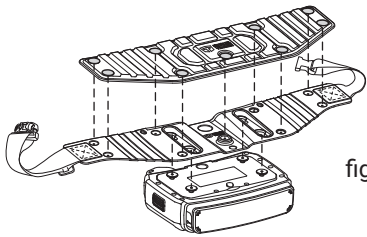


fig.9

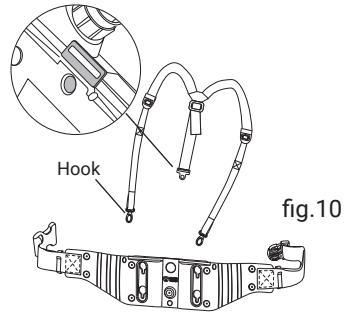


fig.10

Changing Airflow

- When the PAPR is running, it will stay powered on and deliver airflow at the standard flow rate. To switch the airflow setting, press and hold the button for 1 second (See fig.11).



fig.11

| DISPLAY | SOUND | INDICATION |
|---------|-----------------------|-----------------------------|
| | --- | Standard flow |
| | --- | Medium flow |
| | --- | High flow |
| | Sound and flash alarm | Breathing tube disconnected |

*Please note that the particle filter indicator only monitors the condition of the particle filter and does not indicate the service life of the combined filter. Leave the contaminated area immediately if you smell or taste any contaminants.

RESPIRATOR REMOVAL

- Remove the headtop from your head.
- Press and hold the on/off button for 2 seconds to power off the blower unit (See fig.12).
- Release the buckle of the waist strap (See fig.13).

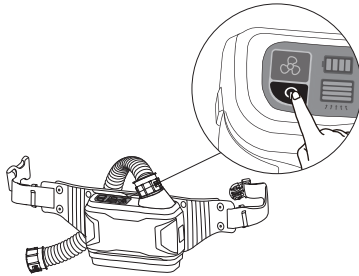


fig.12

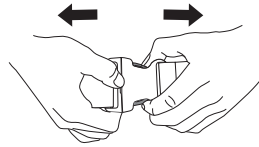


fig.13



WARNING



- Never remove the headtop or power off the PAPR before leaving the contaminated area.
- Ensure that the PAPR is switched off before removing the filter.

MAINTENANCE

CLEANING

Option 1: Clean the device surface using a clean, soft cloth dampened with mild neutral-detergent or household soap. Do not use gasoline, chlorine degreasers (such as trichlorethylene), organic solvents, or abrasive cleaners, as they may damage the device.

Option 2: If you don't need to remove the battery and filters, after detaching the breathing tube, immediately seal the blower air outlet with the outlet plug, spray and clean the blower unit. Ensure all parts are completely dry before reassembly. (See fig.14).

Option 3: If you need to remove the filter, first remove the filter cover, then block the blower's air inlet with the inlet plug. Then detach the breathing tube, seal the blower air outlet with the outlet plug, spray and clean the blower unit. Ensure all parts are completely dry before reassembly. (See fig.15).

1. Do not clean the blower if the battery is damaged.

Clean with neutral detergent solution. Make sure the contact parts are clean and dry

2. before storage and use.

3. Do not clean filters by knocking or blowing if they are meant for reuse.

4. Do not immerse the blower assembly or battery in liquid. Do not wipe the plugs.

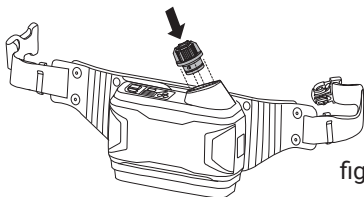


fig.14

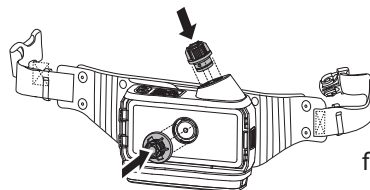


fig.15

MAINTENANCE

Maintenance and repair of the device should be carried out by trained personnel.

| CHECKLIST | TIME |
|----------------------|--|
| Airflow check | Before use |
| Alarm system check | Before use |
| Overall system check | Before use |
| Cleaning | After use |
| Filter replacement | Depends on the type of contaminants and associated risk levels |

ALARM TYPES AND SOLUTIONS

| ALARM TYPE | DISPLAY | SOUND | VIBRATION | SOLUTION |
|---|---|---|---|---|
| Low battery | Red battery indicator light on | Beeps every 35 seconds, each beep lasting one second | Vibrates at a 125 seconds interval, with each vibration lasting 5 seconds | <ol style="list-style-type: none"> 1. Recharge the battery. 2. Battery not correctly installed. Reinstall the battery pack. 3. Battery has exceeded its service life. Replace it with a fully charged new battery. 4. Operating temperature of the battery has exceeded 50°C. Move to an environment with a lower temperature. 5. Check and remove any contamination on the connection part. |
| Insufficient airflow | Green filter loading indicator flashing | Beeps at a one-second interval, with each beep lasting 0.5 second | Vibrates at a one-second interval, with each vibration lasting 0.5 second | <ol style="list-style-type: none"> 1. Breathing tube blocked. Clean/replace the breathing tube. 2. Filter is blocked. Replace the filter and pre-filter/spark screen. 3. Operating temperature has exceeded the recommended level. Please relocate to a cooler environment. |
| Filter missing or incorrectly installed | Filter loading indicator flashing red | Beeps at a one-second interval, with each beep lasting 0.5 second | Vibrates at a one-second interval, with each vibration lasting 0.5 second | Replace the filter. |
| Filter is loaded and need replacement | All green light bars are on accompanied by red warning light flashing | Beeps at a 1.5-second interval, with each beep lasting 0.5 second | Vibrates at a 1.5-second interval, with each vibration lasting 0.5 second | Replace the filter. |
| Breathing tube missing or incorrectly installed | Fan indicator flashing red | Beeps at a one-second interval, with each beep lasting 0.5 second | Vibrates at a one-second interval, with each vibration lasting 0.5 second | Check if the breathing tube is correctly installed. |

STORAGE AND TRANSPORTATION

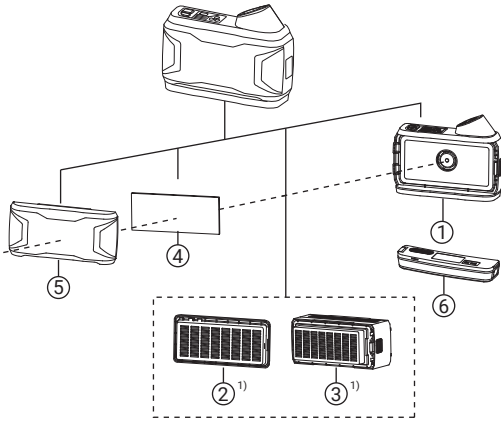
This product should be stored in its original packaging in a dry, clean environment away from sunlight, high temperatures, gasoline, and solvent vapors. Do not store the product outside the temperature range of -20°C to +55°C or in an environment with humidity exceeding 90%. For long-term storage, remove the battery pack from the motor/blower.

RESPIRATOR SPECIFICATIONS

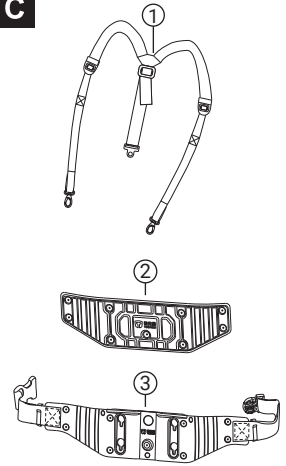
| | |
|-----------------------|--|
| Airflow Rate | Manufacturer's minimum design flow rate: 170+lp _m |
| | Standard speed: 170+lp _m |
| | Medium speed: 190+lp _m |
| | High speed: 210+lp _m |
| Filtration efficiency | 99.997% |
| Battery | 6400mAh Rechargeable Li-ion battery |
| | Charging time: 2.5h |
| | Battery discharge time: 11h (170L/min) (Fully charged with new particle filter) |
| | 9h (190L/min) |
| | 7h (210L/min) |
| Altitude | -500~5000m |
| Operating temperature | -10 °C-50 °C |
| Weight | Blower: 1469 g waist belt: 307 g |
| Outer shell rating | IP54 |
| Intrinsic safety | II 2 G;Zone 1,Ex ib IIC T4 Gb |
| | II 2 D;Zone 21,Ex ib IIIB T135°C Db |
| | I M2;Category M2,Ex ib I Mb |
| Filters | The technical specification in this section applies to the pre-filter/P3/A1P3/A2P3/ABEK1P3 filters |

PART LIST

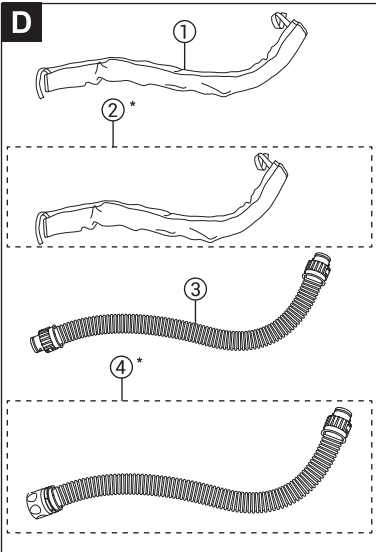
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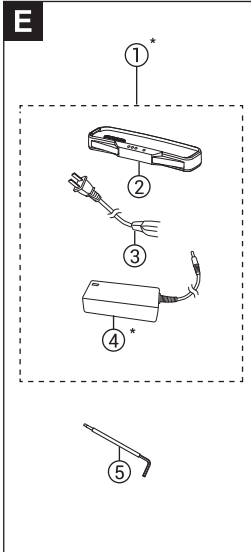
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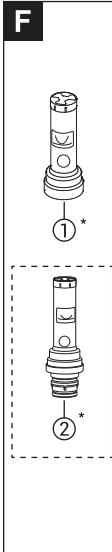
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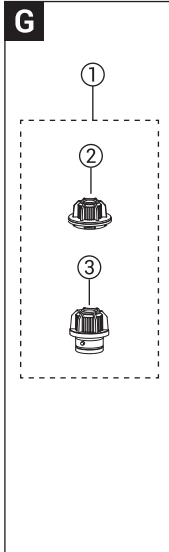
E



F



G



- 1) Options with * are for reference only; please check the actual product set for accurate information.
- 2) Parts D2 and D3 are designed for different headtops, please choose accordingly for compatibility.
- 3) F-1 is suitable for D-2, F-2 is suitable for D-3, please choose it according to actual match.

PART LIST

| ITEM | PART NO. | DESCRIPTION |
|--|----------------|---|
| B. Blower Unit (*denotes alternative(s) available.) | | |
| B-1 | ExFlow E401 | Intrinsically Safe Powered Air Purifying Respirator Blower Unit |
| B-2 * | ExFlow E203 | P3 Filter |
| B-3 * | ExFlow E204 | A1B1E1K1P3 Combined Filter |
| | ExFlow E205 | A2P3 Combined Filter |
| | ExFlow E206 | A1P3 Combined Filter |
| B-4 | ExFlow E202 | Pre-Filter |
| B-5 | ExFlow E601 | Filter Cover |
| B-6 | ExFlow E302 | Intrinsically Safe Battery |
| C. Wears | | |
| C-1 | ExFlow E522 | Shoulder Strap |
| C-2 | ExFlow E502 | Comfort Pad |
| C-3 | ExFlow E501 | Easy Clean Belt |
| D. Hose (*denotes alternative(s) available.) | | |
| D-1 | ExFlow E623 | Hose cover |
| D-2 * | ExFlow E624 | Quick-connection Hose cover |
| D-3 | ExFlow E611 | Hose (Including O-ring) |
| D-4 * | ExFlow E621 | Quick-connection Hose (Including O-ring) |
| E. Battery Charger (*denotes alternative(s) available.) | | |
| E-1 * | ExFlow E314-AU | Single Station Battery Charger Kit(AU) |
| | ExFlow E314-EU | Single Station Battery Charger Kit(EU) |
| | ExFlow E314-UK | Single Station Battery Charger Kit(UK) |
| | ExFlow E314-US | Single Station Battery Charger Kit(US) |
| E-2 | ExFlow E311 | Charger Base |
| E-3 * | ExFlow E312-AU | Power Cord(AU) |
| | ExFlow E312-EU | Power Cord(EU) |
| | ExFlow E312-UK | Power Cord(UK) |
| | ExFlow E312-US | Power Cord(US) |
| E-4 | ExFlow E313 | AC Adapter |
| E-5 | ExFlow E901 | Battery Attachment Tool |
| F. Airflow Indicator (*denotes alternative(s) available.) | | |
| F-1 * | V1AI TM300 | Airflow Indicator |
| F-2 * | V1QAI TM300 | Quick-connection Airflow Indicator |
| G. Storage and Cleaning Kit | | |
| G-1 | ExFlow E904 | Storage and Cleaning Kit |
| G-2 | ExFlow E905 | Inlet Plug |
| G-3 | ExFlow E906 | Outlet Plug |

*This blower unit is used together with G10/G20-V/TM-H1/TM-H2/TM-H3 headtops.

*Options with * are for reference only; please check the actual product set for accurate information.

WARRANTY

Tecmen's only obligation shall be repair, replace or refund the purchase price of such parts or products material and fabrication defects free of charge within the warranty period.

This warranty does not cover to cause by improper handling abuse or application other than recommended in the user instruction.

If you come across any problem during warranty period, contact your distributor, send the defective parts together with the completed defect problem if necessary.

Thank you very much for choosing a TECMEN[®] product!

For future reference, please complete the owner's record below :

Serial Number :

Purchase Date :



SG SAFETY