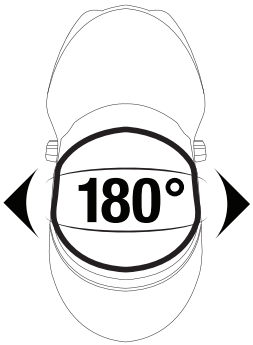
TUNDRA® INDUSTRIAL

TUNAWH02

AIR FED WELDING HELMET KIT



WITH POWERED AIR RESPIRATOR

CE Approved to BS EN12941 : 1998 + A1:2003 +A2:2008
RESPIRATORY PROTECTIVE DEVICE - POWERED FILTERING DEVICE, INCORPORATING A WELDING HELMET OR IMPACT PROTECTIVE FACESHIELD, CLASS TH2P R SL DEVICE
USER INSTRUCTION MANUAL

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Compulsory Information for the use of a powered respirator with hood type head unit.

Please read these instructions carefully before unpacking your TUNAWH02 product. Failure to comply with the instructions in this leaflet may void your warranty and adversely affect your health. If you have any questions regarding the suitability of this product to your task. please contact an occupational hygienist or call the manufacturers technical help line.

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

Contents:

1. Introduction:

TUNAWH02 is a respiratory protective system which is based on the principle of circulated over pressured air in the hood. 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. Approvals:

TUNAWH02 has been designed and manufactured to comply with
EN12941: 1998 as a TH2P R S L 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 TH2P R SL device as offering an Assigned Protection Factor of 20.

TUNAWH02 can only provide this level of protection when used with filters provided by the manufacturer marked " TUNAWH02" and "EN12941 : 1998 + A1:2003 +A2:2008 TH2P R SL".
TUNAWH02 is certified with Welding helmet MSH01 which is certified to EN 175 B.
TUNAWH02 is manufactured under ISO 9001:2015 Quality System.

3. Preconditions for use:

This Respirator must be used strictly in accordance with this instruction leaflet 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.
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 off.

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 17% 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 no filter is installed.

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.

Make sure that the headpiece fits the user's face perfectly. Only then the efficiency of the system is sufficient. The protective factor of the complete system is reduced if the seal of the headpiece is not fitted properly, for e.g. 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.
At very high work rates the pressure in the device may become negative at peak inhalation flow.
TUNAWH02 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.

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Contaminant can be smelt or tasted inside the Head-Unit.
Materials that may come into contact with the users' 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.

4. System Overview:

The TUNAWH02 unit is a belt mounted powered respirator with a replaceable, disposable high efficiency particle filter system. The system is certified with the helmet WH02 PAPR and the helmet covers head sizes from 535 to 600mm circumference.
The TUNAWH02 unit contains a removable 8hr rechargeable battery pack.
The TUNAWH02 unit will warn the user when the MMDF of 170 L/min, is not achieved with its audible alarm.

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 audible and visual alarms for a low battery and a blocked 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 Iron 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.

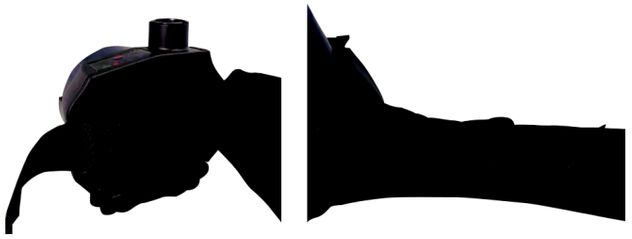
5. Unpacking / Assembly / Usage:

5.1. 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 and Filter Cover
2. Belt
3. Air hose
4. Air flow indicator
5. Battery charger
6. User Instructions

5.3 Assembly
Attach the respiratory unit onto the belt:
Pass the inner strap through the back of the blower loops.

The pass through the 3 belt loops and then through the buckle.



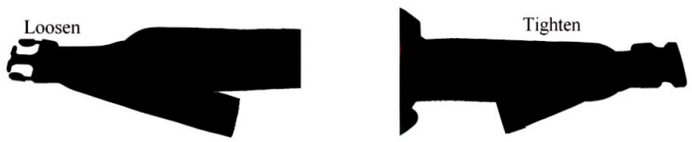
Fit the battery to the Blower unit:

Ensure the battery catch is snapped into position as shown

5.2.1. 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.



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5.2.2. Particulate Filter:

Use only TUNAWH02 filters and Pre-Filters as supplied by Tundra Industrial Co Ltd.

It should first be ascertained by consulting an occupational hygienist or by calling the manufacturers technical help line as to whether or not the TUNAWH02 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.

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 180 hours and should not be exceeded.

It is prohibited to clean the filters by any procedure!

5.2.3. Removing the Filter:

Opening the filter cover: Grip the cover and rotate it anti clockwise until it stops, then pull up the cover from the blower.

ATTENTION! It is strictly forbidden to use any tools to open the filter cover.
To remove the filter, pull it off the filter seal while rotating it. Clean the unit from dust.

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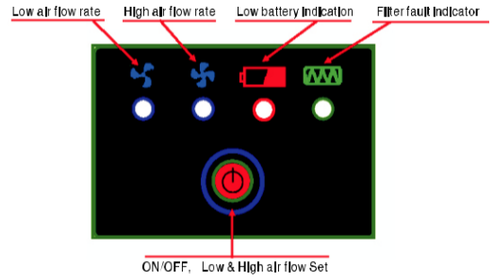
5.3. Usage:

Switch on the unit by pressing the ON/OFF button on the control panel. The airflow can be either the low speed 180 l/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 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. 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 battery: When first starting the unit, the battery LED must show red – this shows a fully charged battery. 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 8 for additional suggestions.

6. Before use:

6.1 Inspection before use:

Each 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.

· There is a good connection between the air hose and the headpiece as well as the blower unit.

· There is sufficient air flow.(see 6.2.)

· The air is supplied through the whole respiratory system from the blower to the hood.

Charge the battery before the first use. (see 6.3.)

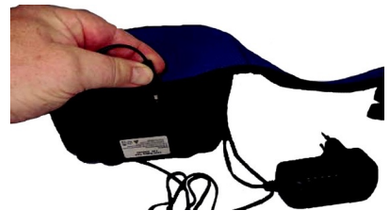
6.2. Air Flow Test:

1. Disconnect the air hose from the Blower unit.

6.3. 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.

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 6 to 8 hours.



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6.3.1. Battery charging:

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

2. Plug the charger into the socket.

3. 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.

4. 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.

5. Disconnect the charger from the power supply.

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

6.3.2. 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 pushing downwards.

Fitting the battery: Make sure the battery is the correct way up (as per 5.2) and then slide into the bower until the battery catch engages. It is essential that the battery catch is fully locked.

7. 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.

8. Fault finding:

If there is a sudden change in air supply while using the TUNAWH02 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 all	Entirely discharged battery. (verify if the blower unit works with another charged battery) Faulty motor, circuit board or connector	Charge the battery. (if problem persists, check the battery) Contact your supplier.
Low airflow	Blocked air hose or airduct. Leakage Battery is not charged enough. Blocked Filter or Pre-Filter	Check and remove blockage. Check all seals, connectors and the air hose. Make sure that air cannot leak through holes or tears. Charge the battery (if problem persists, check the battery) Change the Pre – Filter. Then if the problem persists change the main filter.
Short operating time.	Clogged Filter. Battery is not charged properly.	Change the filters Charge the battery. (If problem persists, check the battery)
Battery cannot be charged.	Battery contact is damaged. Charger is faulty.	Check the battery contact. Contact your supplier.
Battery cannot be charged sufficiently.	Battery is worn out.	Install a new battery.

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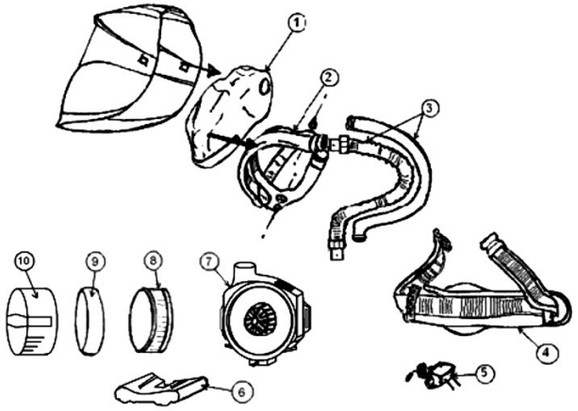
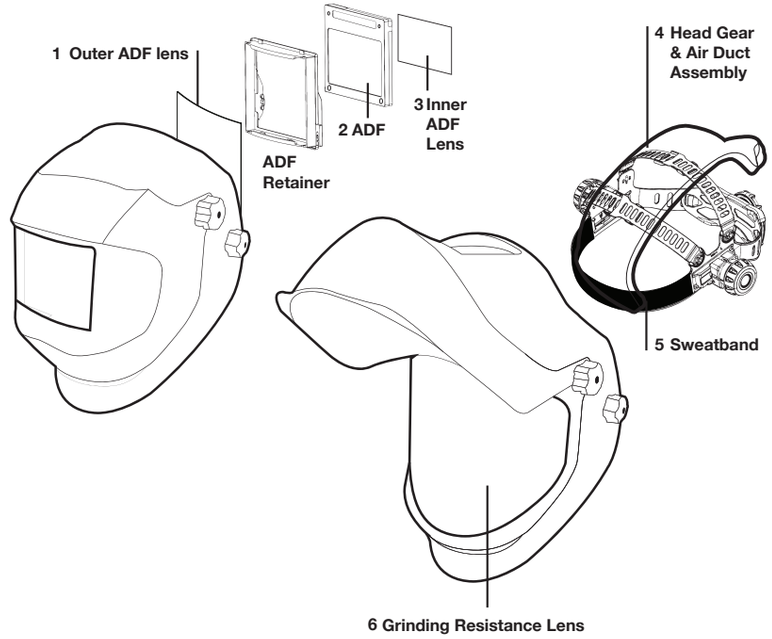
9. Storage and Transportation:

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.

10. List of Parts and Assembly Drawing:



Item Number	Description	Product Code
1	Face Seal	TUNAWH-S06
2	Head Gear / Air Duct Assembly	TUNAWH-S11
3	Hose & Cover Assembly	TUNAWH-S12
4	Belt	TUNAWH-S17
5	Euro Charger	TUNAWH-S08
5	Universal Charger	TUNAWH-S08
6	Battery	TUNAWH-S07
7	Blower Unit	TUNAWH-S13
8	Filter	TUNAWH-S01
9	Pre-Filter	TUNAWH-S02
10	Filter Cover	TUNAWH-S14



Item Number	Description	Product Code
1	Outer ADF Lens	TUNAWH-S04
2	ADF	TUNAWH-S15
3	Inner ADF Lens	TUNAWH-S05
4	Head Gear / Air Duct Assembly	TUNAWH-S11
5	Sweatband	TUNAWH-S10
6	Grinding Resistance Lens	TUNAWH-S21

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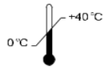
11. Technical data:

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: 180 or 220 Litres/ min. Minimum flow rate 170 Litres/ min.
Weight with filter: 920 grams
Type of filter: P R S L
Type of Battery: Replaceable and rechargeable Li-Ion 7.4V/7800mAh

Contaminant can be smelt or tasted inside the Head-Unit
Materials that may come into contact with the users' 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.

Charging Cycles >350
Visual alarm for low battery voltage.
Visual, audible alarms and Vibration alarms for insufficient flow rate (below 170L/min)
Actual Protection Factor (APF) 20
Noise level: 65dBA
Operating time greater than 8 hours on minimum flow rate with a new filter and fully charged battery in a clean environment. (5 hours on maximum flow rate.)
Note ! Operating time can be shortened in case of clogged filter under changed battery Certification EN 12941:1998+A1:2003+A2:2008 Certified by: DEKRA-EXAM GmbH

Symbols:

Refer to the manufacturer's instruction manual	
Store between 0 – 40 Degrees C	
Best before xxxx / xx	
Maximum storage Humidity <75%	

Filter Symbols:

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.

12. Warranty:

The TUNAWH02 Blower unit is guaranteed for a period of 12 months from date of purchase against mechanical or electrical defects.

The TUNAWH02 battery is guaranteed for a period of 6 months from the date of purchase. The Company undertakes to exchange or repair without charge, any part found to be defective within this period. Alternatively, and at its discretion the Company may replace.

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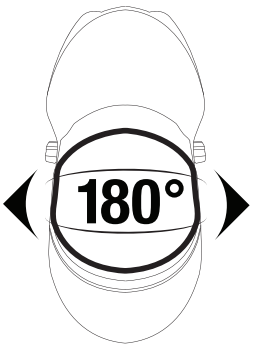

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