

OrangeDot Respirator FAQ, 18.12.2020

- **What is a PAPR?** It is a Powered Air Purifying Respirator. The device takes air, purifies it by passing it through a filtration system and then pumps it via a fan into the face piece. Because the air is pressurised, it pushes exhaled air out of the face piece and prevents unfiltered air from entering. The face piece in this version is loose fitting and there is also a filtered exhalation vent.
- **What is the advantage of a PAPR?** A PAPR with a loose-fitting hood or face piece does not require fit testing like a P2/N95 mask; facial hair will not be a problem. The positive air pressure has a cooling effect on the face and reduces condensation on the visor. Since the air inside is purified, a **face mask is not necessary**.
- **What is the disadvantage of a normal PAPR?** The device needs a robust filter, a powerful fan and a battery pack; these are usually worn on a belt. There is a tube that connects the fan unit to the face piece or hood. The device is quite noisy and difficult to clean.



- **What is the benefit of purchasing your device?** OrangeDot's PAPR is lightweight, face shield mounted and avoids the need of a bulky, heavy fan and battery unit retained on a belt around the waist. The two fans work effectively and with much less noise. No air tube is necessary. The visor, isolation curtain and vent/filter are one unit and are disposable. The HEPA filters inside the device can be changed every 3-6 months. The prefilters can be changed after every work session if required.
- **What is a HEPA filter?** HEPA stands for High Efficiency Particulate Absorbing. It removes a minimum of 99.97% of particles passing through it; this compares to 95% for a P2/N95 respirator. HEPA filters are reusable and last for several months. They are often used with a prefilter.
- **Why do you have a prefilter?** A prefilter is an absorbing barrier that removes large particles before they reach the HEPA filter. The prefilter is cheap and easily changed.
- **Why do you have two fans?** The large one is a centrifugal fan which has a low air flow rate but high pressure. The smaller one is an axial fan which has a high flow rate but low pressure. The centrifugal fan is needed to produce the pressure and axial for

the flow. This combination is unique among PAPR designs and means that noise is kept to a minimum. The minimum airflow recommended for a loose fitting PAPR device is 170 litres/min; this device provides over 280 litres/min.

- **How often should I change the HEPA filter and prefilter?** Prefilter after every session of work; HEPA 3-6 months depending on how often you use your device and what sort of work you are doing.
- **How long will a small power bank last?** The 3,600 mAh power bank provided will power the device for approximately 5 hours.
- **Does the fact that the face piece is loose fitting mean that contaminated air can get inside?** The device is meant to be loose fitting; the positive air pressure prevents unfiltered air entering the face piece. A surgical cap worn under or over the headband can be used to enhance the seal around the head and face.
- **What sort of power bank should I use?** Any 5V 2.1A power bank that can provide DC current via a USB 2 socket; virtually all commercially available **fast charge** power banks that are used to recharge mobile phones are suitable. We recommend devices that have a digital indicator (preferably a numerical percentage indicator) for remaining battery capacity.
- **Is your device TGA approved?** No, but we will apply if we decide to launch this device commercially for healthcare workers.
- **How do I know that the device is producing an adequate airflow?** Please use the airflow testing device that comes with the PAPR and check that the power bank has adequate power. If you feel lightheaded or have difficulty in breathing, please remove the device and seek medical advice. LED lights on the device indicate power on/off and centrifugal fan airflow.
- **Where can I purchase more visors and filters?** Please contact admin@orangedot.com.au
- **Can I use this device in a sterile field?** Yes, the visor has a filtered air outlet on the inferior surface and should be safe to use.
- **How heavy is your device?** Total is 335g = headband (126g) + visor and curtain (25g) + housing and lid (184g). This is significantly lighter than comparable devices.
- **Will I suffocate if the fans fail or my power bank runs out of energy?** Since this device is not sealed and has an exhalation vent, this should not be an issue. However, we advise that the device is not used or even donned without the fans working. Please ensure that the recommended safety check is done before the device is used.

Decibel Level Comparison Chart

Environmental Noise	dBA
Jet engine at 100'	140
	125
Pain Begins	
Pneumatic chipper at ear	120
Chain saw at 3'	110
Power mower	107
Subway train at 200'	95
Walkman on 5/10	94
<i>Level at which sustained exposure may result in hearing loss</i>	<i>80-90</i>
City Traffic	85
Telephone dial tone	80
Chamber music, in a small auditorium	75-85
Vacuum cleaner	75
Normal conversation	60-70
Business Office	60-65
Household refrigerator	55
Suburban area at night	40
Whisper	25
Quiet natural area with no wind	20
Threshold of hearing	0

Note: dBA – Decibels, A weighted

- **How noisy is the device?** Approximately 45 dBA- less than normal conversation. It is significantly less noisy than comparable devices.
- **Is there a power loss or low battery warning system?** Yes. If the power is cut off or the battery energy level reaches zero, a bright white LED will flash and an alarm sound will activate for several seconds.
- **How much does your device cost?** This information will follow but it will be significantly cheaper than comparable devices.

- **Further questions?** Please contact us at admin@orangedot.com.au
- www.orangedot.com.au

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