

UK1 12V NBC AIR FILTER

UK1 12V NBC air filter for
emergency shelters.



The UK1 is a purpose built 12V air filter system designed for domestic use to bring clean air into a sealed emergency space.

Whether it's a safe room, basement fallout shelter or improvised inner refuge, an emergency shelter should have a suitable air filter to bring in clean breathable air.

It also must create positive pressure, where pressure inside the shelter is greater than the pressure outside of the shelter. The reason for this is that exhaled carbon dioxide needs to be expelled as well as unwanted odours. As important - the positive pressure (inside air pushing out of the shelter) prevents contaminated air from seeping in from outside through cracks and gaps.

The portable UK1 consists of a tough powder coat painted heavy duty steel enclosure containing a fan, adjustable speed controller and specially made replaceable filter block.

The filter block is comprised of in sequence: a pre filter, a HEPA 13 filter, which removes 99.97% of particles down to 0.3 micron and a TEDA carbon filter containing 5kgs (11lbs) of carbon. TEDA carbon is a special type of carbon used in the nuclear industry that is impregnated with Triethylenediamine, which by the process of adsorption removes radioactive iodine and methyl iodine from passing air as well as a range of other toxic gases.

FEATURES

- + **12VDC** - can be used with a range of 12V sources such as car/leisure batteries, solar, wind, pedal and hand crank generators directly
- + **Heavy steel construction** - yet portable
- + **Adjustable speed control**
- + **Can be used for various types of emergency shelter**
- + **Designed and manufactured in the UK by RVA Synergies Ltd**

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Air flow measurements through the UK1 are given in CFM (cubic feet per minute). The maximum output is 100 CFM. The amount of air that an adult with a high pulse rate breathes is up to 5 CFM per min.

Therefore theoretically 100 CFM could provide air for up to 20 people. In practice the UK1 is intended for use by small families, where 4 people will require around ~25CFM. One must take into account that the air flow rate will be reduced with the addition of certain pre filters in wall fittings, along with different lengths of ducting, pipework, power source fluctuations and battery drain. With this in-mind it is safer to double the amount of air that a person might need, to 10CFM. This means that in practice the UK1 could support 10 people. Noise reduction is important wherever possible. The UK1 can be turned down to a more comfortable level with the built-in speed controller. In addition to the reduction of noise levels, reducing fan speed (and air output) will reduce current drain from a battery.

In the event of a nuclear attack an EMP (Electromagnetic pulse) needs to be considered. The UK1 contains electrical circuitry that is deliberately low tech, avoiding LCD screens, timers and anything requiring microelectronics that is most vulnerable to an EMP.

The unit itself provides a degree of EMP protection because it is a solid steel enclosure. *Albeit with a 100mm hole in the top and side.

The motor controller module inside has some electronic components, but it is wrapped in a fine stainless-steel mesh for further protection.

We offer the UK1 as a stand-alone unit (filter enclosure and filter only, with QTY 2 wire-able power plugs), for use with your own 100mm ducting, ducting clips, tape and on/off-grid power supplies.



Filter block label



*Please note that the UK1 is currently supplied as the main component of a shelter's air filter system only. Wall fittings, blast valves, pipes and duct requirements may vary with different types of shelter and should be ascertained during a shelter design process. RVA Synergies will advise as far as possible and is likely to increase the UK1 range with wall accessories in the future.

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Contents and Specifications

MAIN COMPONENTS

Main Construction

- Steel enclosure, powder coat painted
- Quick release cover providing access to replaceable filter block

Filter Construction

- Combined HEPA / TEDA carbon filter block in metal unit with foam gasket on each face

Filter Specification

- HEPA 13 to EN1822 standard
- 99.97% particle removal to 0.3 micron
- TEDA (Triethylenediamine impregnated) activated carbon granules (coconut shell) 5kgs / 11lbs

Power

- 12VDC 80W / 6A MAX

Air Output

- 100CFM MAX, measured at 100mm output duct as 1500 ft/min x 0.0666 (Area of duct in ft sq) = 99.9 CFM

Residence Time

- 0.3 seconds

External Testing

- EMC tested in UK for electrical emissions and Immunity
- *LEV Thorough Examination and Testing (TExT) under COSHH Regulation 9
- CE & UKCA marked

Dimensions

- 425 x 242 x 406 cms

Weight

- 16kgs



The recommended power source for the UK1 is a 12V leisure/car battery. If there is no power source available the unit can even be run directly from a pedal or hand crank generator. *Battery and pedal generator not included.

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