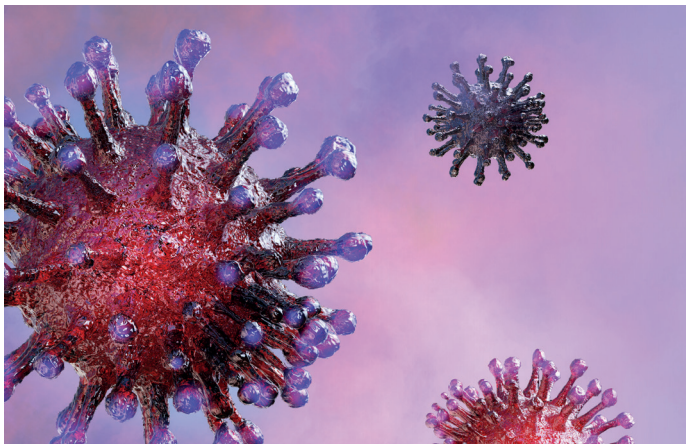
PALL Medical

FAQ Pall Breathing System Filters

Q: Can Pall Breathing Filters retain the SARS-CoV-2?

A: Pall Breathing System Filters (BSF) have been validated for the airborne retention of viruses (e.g. Influenza A Virus (H1N1) and MS2 bacteriophage) and bacteria (e.g. *Mycobacterium tuberculosis* and *Brevundimonas diminuta*) and showed a more than 99.999% filtration efficiency. Pall Breathing System Filters have been shown to retain liquid borne human pathogenic bacteria and viruses (e.g. Hepatitis C and Human Immunodeficiency Virus) at 100%. Based on the physical properties of Pall Breathing System Filters and their efficiency for the retention of similar organisms, we expect them to be a high efficiency barrier against SARS-CoV-2.



Q: Can the Pall Ultipor25 or the Pall Ultipor100 be used at machine side?

A: The Pall Ultipor25 and the Pall Ultipor100 are indicated for patient side use only. For machine side applications, please use the Pall BB50T.

Q: Why do we see water build up in the BB25 and breathing circuits during anaesthesia and how should we deal with this? Is there anything wrong with the filter?

A: Under low and minimal-flow anaesthesia, substantial amounts of CO2 are removed by the soda lime absorber, which produces water vapor as a side product. As the humidity level in the circle system builds up over time, water vapor will condense on the surface of the breathing tubes and other parts of the breathing circuit. The BB25 filter will keep its hydrophobicity over the entire procedure and will act as a barrier to liquid borne contamination between the patient and the breathing system. As water condensate may collect in the BB25, please make sure the product's monitoring port is positioned uppermost.

Q: Can we use drug nebulisation in conjunction with Pall filters?

A: Pall Breathing System Filters will retain nebulized drugs. Whether the use of the filter is compatible with nebulisation depends on the filter's position in the breathing system and in relation to the position of the nebulizer.
The machine side Pall BB50T will retain residual drug aerosol from the expiration gases of the patient and will protect the ventilator against any potential damage from the aerosol.

Nebulisation can be used between the patient and the Pall Ultipor100. If water soluble drugs are used (wet nebulisation), the filter can be used for a maximum of 24h. If dry nebulisation is used, e.g. via metered dose inhalers, the Ultipor100 life can be extended to a maximum of 48h.
It is not recommended to use drug nebulisation upstream of a patient side filter (e.g. in the inspiration limb), as drug aerosol will be removed by the filter and will not reach the patient.
The Pall BB25 is not indicated for use in conjunction with drug nebulisation.
Proper ventilator pressure alarms have to be set at all times and precautions taken to monitor sudden increases of filter resistance under drug nebulisation.

Q: Can Pall Breathing Filters be cleaned and sterilised?

A: The use of cleaning solutions will affect the filter media integrity and destroy its filter function. It may also lead to an increase in filter airflow resistance, with possible negative consequences, if the filter is used on a patient subsequently. Soaking, rinsing, washing or sterilizing Pall Breathing System Filters is therefore contraindicated. They must not be treated with liquid disinfectants.

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Q: Can the Pall BB25 be used on paediatric patients?

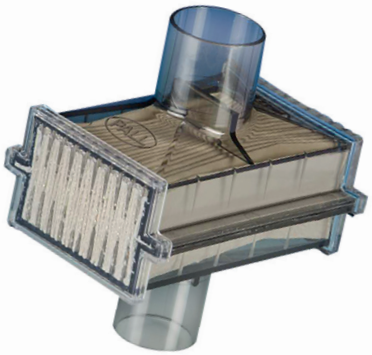
A: The Pall BB25 has a dead space of approximately 35 mL. It has been used by clinicians at tidal volumes of approximately 100 mL on children of about 1 year of age and a body weight of 10 kg. The use of uncuffed endotracheal tubes in paediatric ventilation can lead to air leakage and may require tidal volume compensation. This has to be taken into consideration in paediatric ventilation.

Q: Are Pall Breathing System Filters HEPA-Grade?

A: HEPA (High Efficiency Particle Absorber) Filters are defined by their efficiency in retaining particles of 0.3 µm size with at least 99.97% efficiency. HEPA filters are used in different industries, which require the control of particulate or microbiological contamination, e.g. in the production of CDs, semiconductors, food, pharmaceutical products and medical devices. They are also used in hospitals to provide clean air for areas of critical applications. The test procedure for the efficiency of breathing system filters is laid down in an international standard, the ISO 23328-1:2003. This standard requires the test filters get challenged with salt particles in the range of 0.3 µm and the salt penetration rate is recorded. It does not define a threshold for the minimally required filter performance. Pall Breathing System Filters have been tested in accordance to this standard and show the following performance: BB100: 0.006%; BB50T: 0.016%; BB25: 0.046%. In filtration efficiency terms this is for the BB100: 99.994%; the BB50T: 99.984%; and the BB25: 99.954%. Clinical decision makers, however, want to know about the bacterial and viral retention efficiency of filters. In laboratory airborne filtration efficiency tests with various virus and bacterial species (MS2, Influenza A, *Brevundimonas diminuta*, *Mycobacterium tuberculosis*, and others), the Pall Breathing System Filters showed a filtration efficiency of more than 99.999%. Pall Breathing System Filters retained viruses and bacteria (HIV, Hepatitis C virus, *Staphylococcus aureus* and others) in liquid borne challenges with an efficiency of 100%.

Ultipor™ 25

Ultipor™ 100



BB50T

[1] Hübner NO et al. Microbiological safety and cost-effectiveness of weekly breathing circuit changes in combination with heat moisture exchange filters: a prospective longitudinal clinical survey. GMS Krankenhhyg Interdiszip 2011;6(1):Doc15.

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