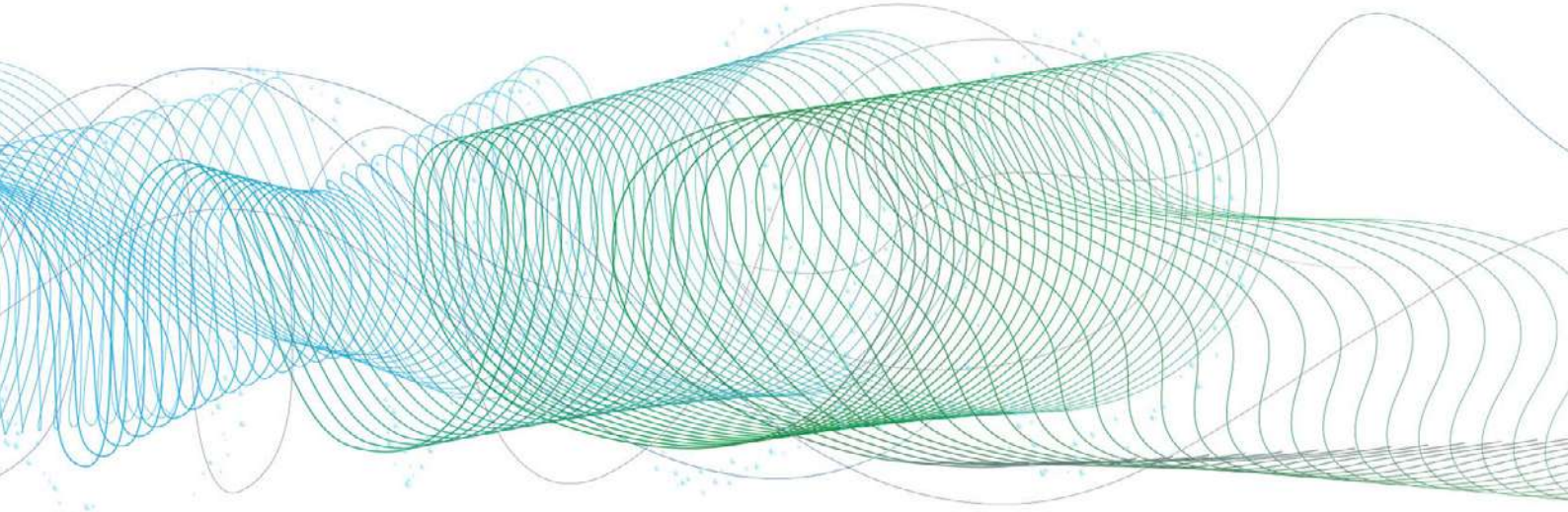
FILTER TECHNOLOGY

# Product Collection

## Healthcare Air Filtration



GVS

FILTER TECHNOLOGY


Life in every breath.

This catalog is designed to provide complete information about the full range of GVS Healthcare Air components and filters.
For the sake of simplicity and clarity, the catalog is divided into product categories, consisting of a set of entries illustrating the general characteristics, the field of application and the code of each item. The products are accompanied by a brief description featuring the main technical specifications, the shape and dimensions, the quantity of packaging and a statement of correspondence to the required standards. The wide range of filters and components made by GVS cover all the requirements of the medical device market.

## Caution

The data in this catalog may vary according to the different types of materials used in the molding. This means that the product design may sometimes require analysis before orders are accepted.

# GVS Group

With 40 years experience, GVS Group is one of the world's leading manufacturers of filters for applications in the Healthcare, Life Sciences, Automotive, Appliance, Safety, and Commercial & Industrial Filtration sectors.

## Healthcare Filters & Components

The origins of GVS initially focused on medical filters for blood and IV solutions. Today GVS provides a wide range of innovative products, including standard and custom devices for laboratory filtration, anesthesia, intensive therapy, and respiratory medicine.

## International expansion

GVS group's presence in major markets across the world has led to the opening of 15 production and sales facilities located in Italy, UK, Brazil, USA, China and Romania as well as offices in Germany, Russia, Turkey, India, China, Japan and Korea.

## Sophisticated industrial Technology

GVS's highly innovative medical device production technologies include multi-cavity insert and over-molding, high-speed automatic assembly, ultrasonic, heat and radio-frequency welding ,laser cutting and welding and All in-Mold technology, a revolutionary manufacturing technology combining injection molding and robotic assembly all within the molding tool.

## Commitment to Quality

GVS Group have operated to the international standard ISO 9001 since 1995.
The Medical Division has obtained ISO 13485 certification as well as authorisation for CE marking in accordance with the European Directive 93/42/EEC for some of its medical devices.
The majority of GVS plants have successfully achieved UNI EN ISO 14001 certification for Environmental Management System (EMS).
All other divisions continue to operate to ISO 9001 and other required certifications for their specific markets.

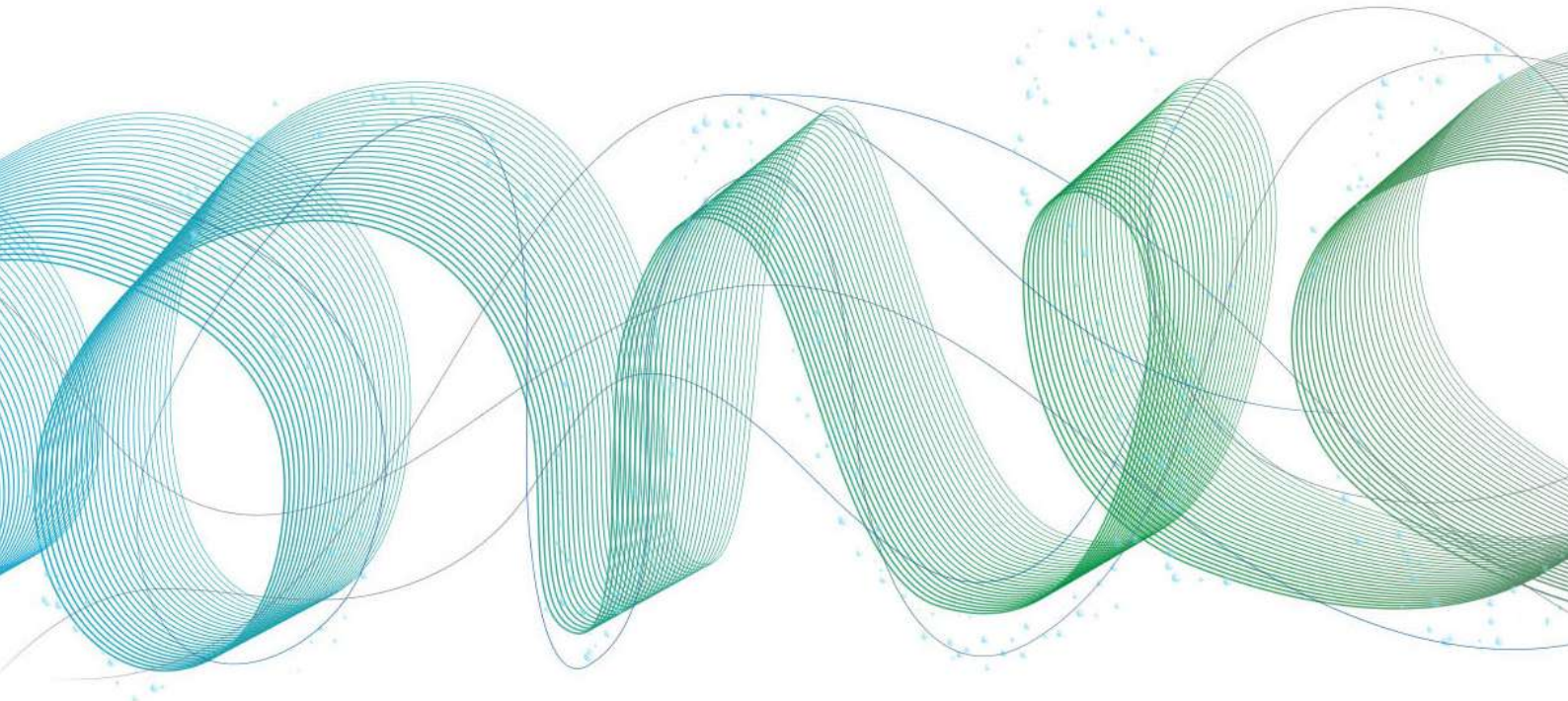
## Research & Development

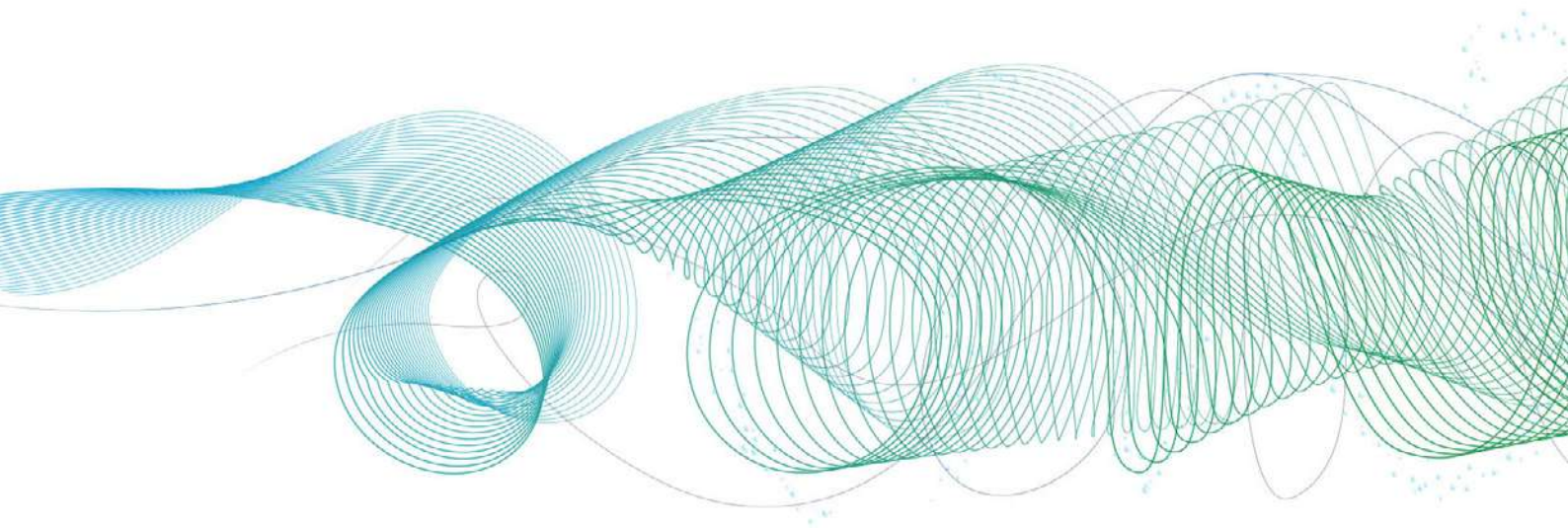
A great part of the know-how incorporated within GVS's products comes from its Research Lab, which ensures that the company's various divisions get all the R&D they need. With its pioneering tools and facilities and highly sophisticated analytic techniques, this lab also works in close conjunction with a large number of hospitals and academic bodies of international acclaim, in Italy, in the UK and wherever GVS operates. Without it, the group's strongly innovation oriented policy and commitment to growth would not be as effective.

**Every day approximately 90 million surgeries are performed worldwide.**
In 30 million cases, equipment is employed that uses breathing filters.

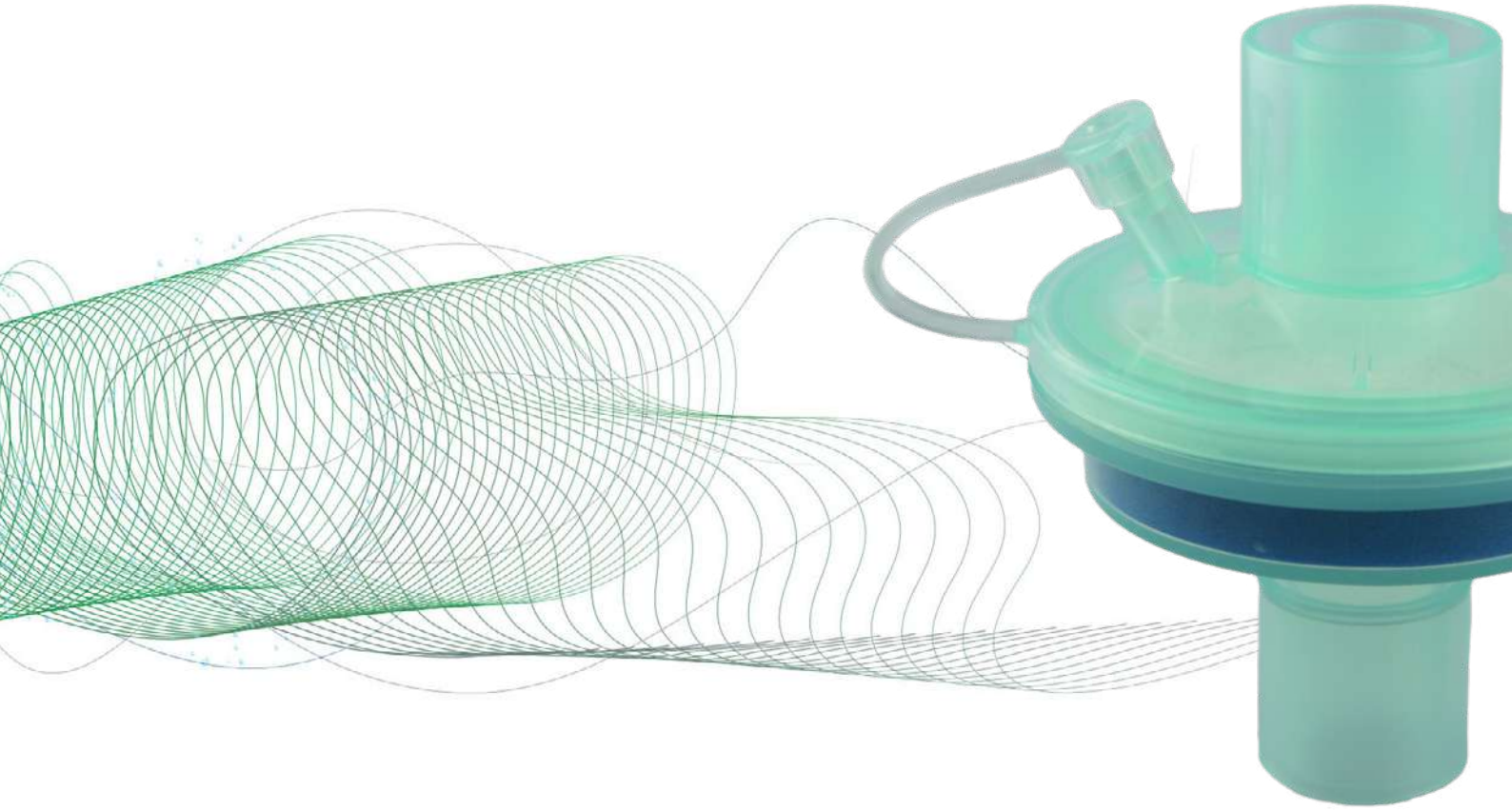
# Contents







# Respiratory
## Filters & Accessories

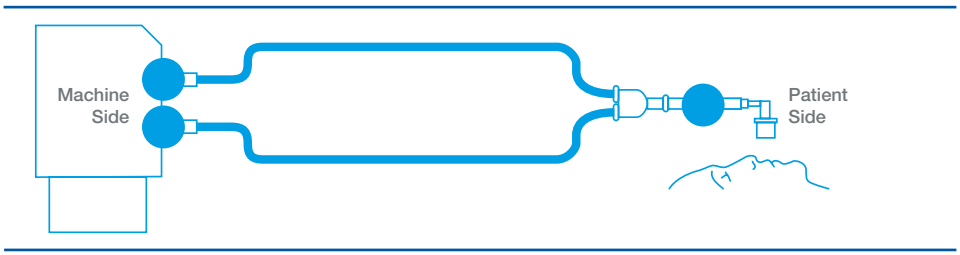


# GVS - Healthcare Air Filtration

## Where is a breathing filter used?

Even in a hospitalised environment, it is challenging to guarantee sterilisation of equipment for each surgical patient since every day several scheduled surgeries as well as emergency procedures are completed in a single operating room.
Sterilisation of the apparatus requires special equipment and can take a long time meaning expensive equipment has too much downtime.
Using a single use, disposable bacterial/viral filter during the implementation of anaesthesia will severely reduce cross infection between the patient and machine. As the filters are single use per patient the equipment does not need to be sterilised each time enabling machines for surgery to be used more quickly and efficiently.

## Filter Location in the System




The filter can be positioned at the patient Y piece, in the Expiratory or Inspiritory limb of the breathing circuit to reduce the risk of a patient becoming infected via the apparatus or closest to the patient to reduce risk of the patient contaminating the machine.

## Why a filter is used

The primary purpose of breathing filters placed between the patient and the respiratory circuit is prevention of cross infection between the patient and apparatus when performing endotracheal anaesthesia or mechanical lung ventilation.
These procedures require that the upper airway be bypassed during respiration. The purpose of the upper airway is to remove particulates from the air to deactivate bacteria and viruses by means of biologically active substances having bactericidal and viricidal properties. These are secreted by the mucous membrane, and also to warm inspired air to 35°C-36°C and to humidify it to a relative humidity of 98%-100%.

## Problems that patients encounter

In addition to the purification of the breathing mixture the upper airways but also provides humidification and warming.
In mechanical lung ventilation, the breathing mixture enters the trachea, bypassing the upper airways.
The lack of humidification and warming of the breathing mixture can result in the following complications:

- Hypothermia causing the body to drop below a normal temperature.
- Dehydration, which can cause hypotension.
- Inhalation of contamination and cross infection.
- The mucous membrane swells which disrupts the movement of the mucous in the direction of the pharyngonasal cavity.
- Necrosis of the epithelium and mucous membrane which deprives the lungs of their protective function, leading to lung collapse, infection, pneumonia and other illnesses.

## How Filters Limit the Risks

Transmission of infection during endotracheal anaesthesia and prolonged lung ventilation can be prevented by placing a disposable filtering device between the patient and the respiratory circuit. The breathing filter, can also be given the properties of a heat and moisture exchanger to reduce the risk of dehydration and excessive drop in body temperature. As well as providing a barrier to particulate matter entering the patient airways, using breathing filters significantly increases the material resources of the anaesthesia and respiratory equipment.

## Type of Filtration Devices

The type of breathing filter and also where it is placed depends on the type of illness, and the physiological characteristics of the patient.
**Bacterial / Viral Filter** – Removes particles only.
**HME** – Heat Moisture Exchanger – This filter type contains a foam which retains and returns heat and moisture to the patient. However this filter type does not remove particles.
**HMEF** – Heat Moisture Exchanger + Filter – Like the HME, the HMEF retains and returns heat and moisture but also contains either a pleated or electrostatic filter media that will remove particles.

## How Filters Works

Pleat filters and electrostatic filters both work in different ways.

The positive and negative charge on filter fibres is generated during the manufacturing process and enhances the filter's ability to attract particulate matter.

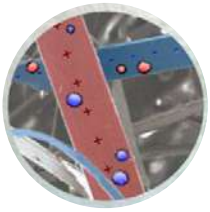
Pleat filters work purely on mechanical filtration and direct interception. Particles which are larger than the pore size of the filter media are unable to pass through and as the filter collects particles the matrix becomes tighter therefore increasing the efficiency.

# FILTRATION MEDIA COMPARISON

The hospital environment is increasingly a potential source of infection and with the increased incidence of infectious diseases the possibility of cross contamination due to the reuse of equipment or the sharing of equipment is a real risk. GVS is able to offer different types of filtration solutions for the protection of patients and equipment in the Medical field. GVS offers both pleated paper filters and electrostatic filters. All are independently tested at Nelson Laboratories USA and CAMR Porton Down UK. All pleated filters are individually tested in accordance with BS EN ISO 23328 to confirm that they are all above 99.97% efficiency and classified as HEPA performance. HME media acts in a similar way to a person's upper airway, when they breathe out the media traps and retains moisture and warmth present in the expired breath, which otherwise would be lost. On the next breath the moisture and heat is released, having the effect of both warming and humidifying the inspiratory gas. GVS's line HME media has been developed to maximize the surface area, which is a key feature of the efficiency of performance. The combination of these design features has enabled GVS MAF to achieve over 30mg/L H2O on all there devices when independently tested to ISO 9360 part 1 at MDA test centre University Hospital Wales, Cardiff, UK.

## Electrostatic Media

**Efficiency:** achieved through electrical charge in the media (created through friction during manufacture).
**Consistency:** the electrical charge will dissipate when exposed to moisture, leaving a more open matrix.
Inconsistency arises when the charge has dissipated but insufficient particulates have been collected between the fibres to aid mechanical filtration.
**Protection:** electrostatic media cannot repel blood or fluids. If the filter becomes wet its function deteriorates, and if occluded by fluid the fluid can penetrate and enter the device.



GVS electrostatic filters utilise a unique patented 'triboelectrical charge exchange' between a specially developed blend of polymers to induce a highly stable electrical charge on every individual fibre in the media to more easily trap small particles. The advantages of this type of filter are: efficiencies up to 99.9999%, low manufacturing costs and ease of construction.

Fig: Electrostatic Filter – 50% of fibres +charged: 50% of fibres –charged.

## Pleated Hydrophobic Media

**Efficiency:** achieved by using high-grade paper which is then pleated to increase the filtration area.
**Consistency:** maintained throughout filter use as the fibre matrix is much closer with performance related to the volume of media to achieve efficiency, rather than an electrical charge to boost it. There is no risk of inconsistency arising as with electrostatic filters.
**Protection:** a special treatment of the media enables it to repel blood and fluids thereby preventing it from passing into the system and risking contamination, or the filter losing efficiency at being able to filter the air.

GVS mechanical pleated filters carry hydrophobic properties which provide a complete barrier to viral pathogens under normal clinical conditions. Efficiencies up to 99.99999% are available among GVS range of mechanical pleated filters. The advantage of an ability to cope with most particle sizes, high efficiency over long periods, increased efficiency over time, and the highest possible performance (99.99999% on 24 Hour Test) need to be balanced against the higher cost of production.

# PERFORMANCE

GVS engineering skill in design and development is evidenced by the fact that it produces an HMEF that has achieved one of the highest ever recorded moisture outputs.
The patents held by GVS further testify to its innovative capabilities. Experience in the use of a wide range of filtration medias ensures cost-effective production without compromising on efficiency or performance even for its filters that achieve 99.99999% efficiency.
Depending on the type of filter or its intended application independent testing is carried out by Nelson Laboratories in the USA; CAMR, Porton Down, the University of Wales, and Dept of Health (MHRA report, March 2004) in the UK.

# FILTER TECHNICAL CHARACTERISTICS

There are certain characteristics that a filter should have in order to assure that it is going to be safe and secure in use within a patient's breathing system. The Filter's primary function is as an effective barrier to prevent any cross contamination in the clinical environment. It needs to be effective against Bacteria, Virus and any fluids that may be present in the patient's airway.
Medical filters performance can be validated in two ways.

## Bacterial and Viral Testing

This is normally performed at an independent test facility which develops specific protocols to simulate the types of challenges that a filter may see in the clinical setting. A challenge particle is chosen to simulate the size of the commonly occurring bacteria and viruses. Generally these tests are not conducted using a "live" virus due to the cost and safety issues. GVS MAF has appointed Nelson Laboratories, Utah, USA as their indipendent test facility. Their bacterial test protocol uses Staphylococcus Aureus as a challenge organism which has an approximate size 0.6 mm and the viral test uses an X174 Bacteriophage which has a size of 0.027 mm. It is worth noting that the HIV virus is 0.08 mm and Hepatitis C is 0.02 mm so the test protocol does offer a clinically relevant reflection of their performance.

## Penetration Test

A standard BS EN ISO 23328 (Breathing System Filters for Anesthetic and Respiratory use. Part 1 Salt Test method to assess filtration performance) has been developed as a method of benchmarking the performance of one filter against another. The test requires the filter to be challenged by a 0.3 µm Sodium Chloride particle at a flow rate of 30 Liters per minute. The level of penetration is measured and the resulting efficiency reported as a percentage. i.e.if a filter has penetration rate of 0.5% the filters performance will be recorded as 99.5% efficient. This test allows a direct comparison of how individual filters perform. Under this system a filter must be more than 99.97% efficient to classified as a HEPA filter. Most of the GVS MAF pleated filters are individually tested during manufacture to confirm that they are all HEPA performance.

The quality of connections of the filter housing is vital to ensure a safe secure fitting within the patients breathing system during clinical use. All of the 15 mm & 22 mm tapered connections are tested and comply with ISO 5356 for maximum patient safety. It is now common clinical practice to continually measure the gas that the patient is breathing in and expiring during the procedure. The GVS filters have been designed to comply with ISO standards to ensure a safe secure fit to monitoring devices. In addition the “Cap & Strap” design is an integral part of the molding minimizing the possibility of it becoming detached and inadvertently occluding the airway, improving patient safety. The GVS products are all designed to meet the clinical requirements from the smallest baby to the largest adult, with a focus upon minimal resistance, minimum weight and product dead space, combined with the maximum possible product efficiency. Clinicians may choose a combined product which offers both filtration and humidification (HMEF) to the respiratory gases. This helps alleviate any symptoms associated with breathing cold dry medical gases for a prolonged period of time. The performance of all HME products is verified by independent testing of the product against ISO 9360.

**Tidal Volume:** (VT) The volume of gas inhaled and exhaled by the patient during one respiratory cycle. The average for a 70 Kg adult is 500 ml.

**Minute Volume:** (MV) The quantity of gas exhaled from the lungs per minute; i.e. the tidal volume multiplied by respiratory rate. An average 70Kg Adult with a respiratory rate of 12 breaths per minute (500 ml x 12) would have a minute volume of 6 liters.

**Dead Space:** There are two types.

1) Anatomical Dead Space is the volume of the patient airways of the nose, mouth, and trachea down to the level of the alveoli, representing the portion of inspired gas unavailable for exchange of gases with pulmonary capillary blood. The average anatomical dead space of a 70 Kg adult is 150 ml.

2) Breathing System Dead Space is the volume of any breathing system components which is adding to the portion of the inspired gas that is unavailable for exchange of gases with pulmonary capillary blood.

**Resistance:** This is an expression of the amount of effort that is required to make an inspiratory or an expiratory breath.

**Efficiency:** This will be the level of filtration protection or function that the device can deliver. The efficiency of the filter is normally expressed as a reflection as the number of micro organisms that pass through the filter media when it is challenged. This filter is then described as being X% efficient. The X% is an expression of the number of organisms penetrating the filter when challenged by an aerosol containing 1,000,000 micro organisms.

The table below explains the relevance of the X% on performance and level of protection in the clinical environment.

| Number of Organisms Challenging the Filter | % Efficiency of the Filter | Number of Organisms Passing through the Filter |
|---|---|---|
| | | |
| 1,000,000 | 90 | 100,000 |
| | 99 | 10,000 |
| | 99.9 | 1000 |
| | 99.99 | 100 |
| | 99.999 | 10 |
| | 99.9999 | 1 |

**HME:** Heat Moisture Exchanger. These devices allow heat and moisture to be captured from expired gases and then returned to the patient in the inspired gases. This is established by testing against ISO 9360 -1 &2 2000 “Anesthetic & Respiratory Equipment, HME’s for humidifying respired gases in humans”.

**Capnography:** This is the measurement and graphic display of $CO_2$ levels in the airways, which can be performed by infrared spectroscopy. A small sample of inspired and expired gases is taken via the gas sampling port on the filter. Capnography assists in the management of the patient by providing continuous and non invasive monitoring of ventilation in critically ill and anaesthetized patients. It allows early detection of clinically significant changes in respiratory status by displaying changes in the amount of $CO_2$ and abnormal $CO_2$ waveforms.

**ISO:** International Standards Organization is a group which has developed test and performance standards to introduce normalized standards of global practice and help improve patient safety.

## GVS Filters

Since 2000 GVS Group have developed a proprietary range of HME (Heat and Moisture Exchanger) and HMEFs (Heat and Moisture Exchanger and bacterial / viral Filter) and Filters (Bacterial and Viral) for use in anesthesia, intensive therapy, respiratory medicine, and ventilation, with efficiencies up to 99.99999%. Technical product specifications provides detailed information on performance: e.g. efficiency, resistance to flow, moisture output (if applicable), dead-space, weight, connector size and overall dimensions. Please note that products are available bulk packed, individually packed clinically clean, and or individually sterile upon request. These products are designed and manufactured using quality systems in accordance with BS EN ISO 9001, BS EN ISO 13485 and to the Medical Devices Directive 93/42 EEC. This means that GVS has the CE Marking on all class IIa filters. Sterile filters are ETO sterilized to ISO11135-1 and Sterility Assurance Level (SAL) monitoring is based on ISO 11737-1 re-Microbiological Methods.

GVS Healthcare Air Filtration offers a range of filters for use within Anesthesia, Respiratory, Critical Care and Surgical clinical areas. These filters are used with patients whose upper airways are being bypassed by an artificial tracheal airway removing the patients natural ability to filter inspired air or receiving artificial ventilatory support where a gas is being introduced into a body cavity as during Laparoscopic surgery or to protect equipment, staff and the environment from potential cross contamination. The hospital environment is increasingly a potential source of infection and with the increase incidence of infectious diseases the possibility of cross contamination due to the reuse of equipment or the sharing of equipment is a real risk.

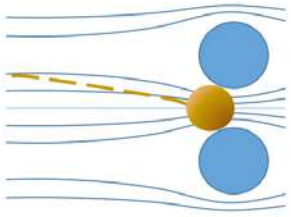
GVS Healthcare Air Filtration is able to offer different types of filtration solutions for the protection of patients and equipment in the Medical field. We offer both pleated paper filters and electrostatic filters. All are independently tested at Nelson Laboratories USA and CAMR Porton Down UK. All pleated filters are individually tested against BS EN ISO 23328 to confirm that they are all above 99.97% efficiency and classified as HEPA performance.

## The GVS Healthcare Air Filtration Advantage

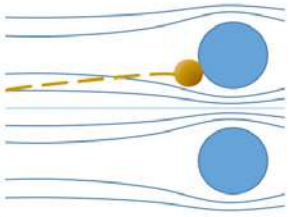
| Feature | Benefit |
|---|---|
| **Low dead space** | Minimizes possibility and dangers associated with re-breathing Carbon Dioxide |
| **Lightweight** | Reduces any pull on patients tracheal connection |
| **Transparent** | Allows easy visualization of any potential blockage |
| **ISO Tapered Connections** | Guarantees safe, secure connection to the breathing system. |
| **ISO Gas sampling port** | Easy, safe monitoring of expired gases |
| **Complete Product Range** | Meets all clinical requirements from Neonatal to Adults. Offers protection for all types of medical equipment from airborne and liquid cross contamination. |
| **Proven performance** | Offers high efficiency protection against bacterial and viral contamination. Independently tested and validated. Efficiencies up to 99.99999% |

# THE THEORY OF FILTRATION

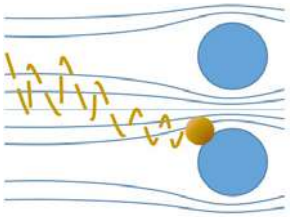
Particulate matter is captured within a filter by 4 main methods:



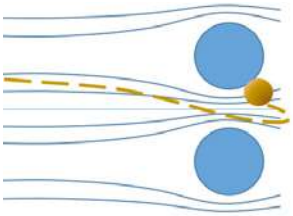
**Straining** - The physical capture of a particle by the fibres or holes in a media preventing it passing due to their relative size.



**Impingement** - The particle physically hits and sticks to the fibre.

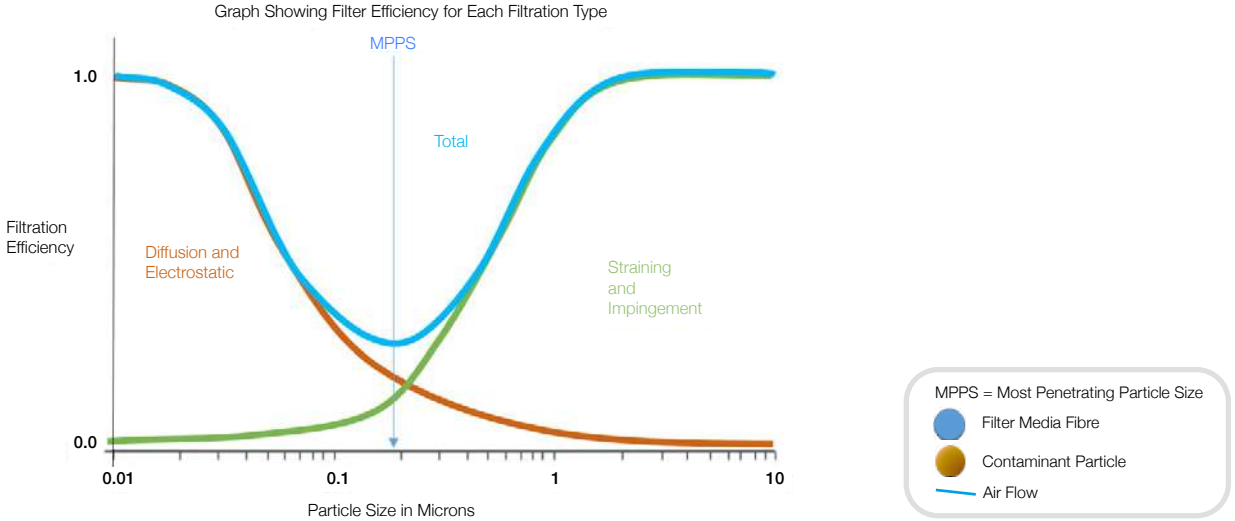


**Diffusion** - Brownian motion causes the particle to move in irregular patterns increasing it chance of making contact with and adhering to the filter fibres.



**Electrostatic** - The particulate is attracted to the media though an electrostatic charge. This is generally only in synthetic media and very often this electrostatic charge diminishes with time and/or humidity.

**MPPS** - The most penetrating particle size varies between different media, contaminants and according to air flow. Generally as air flow increases, efficiency decreases.



# ECO SLIMLINE

The GVS Bacterial / Viral Filters provide effective protection from microbial cross contamination.
This range has been designed for use in breathing and anesthetic systems for the protection of the patient, hospital personnel and the equipment from potential microbial contamination. The GVS Bacterial / Viral Filters are designed with standard ISO fittings to ensure a perfect connection to different ventilators and anesthesia systems. The high efficiency and the very low/stable breathing resistance are the strength of GVS Bacterial / Viral Filters line.
The range of filters includes a large number of options. Filters are available with or without $CO_2$ sampling, straight or angled.


*Range of product in compliance with the ISO 10993-1 Biological evaluation of medical devices*

| Code | ECO MAXI 4222/700 | ECO MAXI 4222/701 | ECO MAXI 4222/702 | ECO MAXI 4222/703 | ECO MAXI 4222/705 | FLOWBAC FR004 |
|---|---|---|---|---|---|---|
| Version | ANGLED ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT |
| Method | Electrostatic | Electrostatic | Electrostatic | Electrostatic | Electrostatic | Electrostatic |
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | K-Resin |
| Media | Blended Synthetic Fibre | Blended Synthetic Fibre | Blended Synthetic Fibre | Blended Synthetic Fibre | Blended Synthetic Fibre | Blended Synthetic Fibre |
| Filtration Efficiency BFE | 99.99995% | 99.99995% | 99.99995% | 99.99995% | 99.99995% | 99.999% |
| Filtration Efficiency VFE | 99.99985% | 99.99985% | 99.99985% | 99.99985% | 99.99985% | 99.999% |
| Resistance @ 30L/min | 82 Pa | 99 Pa | 76 Pa | 74.5 Pa | 45 Pa | 75 Pa |
| Resistance @ 60L/min | 184.5 Pa | 231.6 Pa | 160 Pa | 160 Pa | 96 Pa | 160 Pa |
| Resistance @ 90L/min | 325 Pa | 419.8 Pa | 270 Pa | 255 Pa | 162.5 Pa | 290 Pa |
| Tidal Volume Range | 90-1500 ml | 90-1500 ml | 90-1500 ml | 90-1500 ml | 90-1500 ml | 250-1500 ml |
| Effective Filtration Area | 27.34 $cm^2$ | 27.34 $cm^2$ | 27.34 $cm^2$ | 27.34 $cm^2$ | 27.80 $cm^2$ | 37 $cm^2$ |
| Filter Efficiency | 98.96% | 98.96% | 98.98% | 98.96% | 97.65% | 97,65% |
| Dead Space | 30 ml | 21 ml | 25,5 ml | 34 ml | 21 ml | 30 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F | 22M/15F - 22F | 22F - 22M/15F |
| Sampling Port | Yes | Yes | No | No | No | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 25 g | 25 g | 23 g | 21 g | 25 g | 23 g |
| Dimensions | h. 67.2 mm; w. 68.5 mm | h. 67.2 mm; w. 68.5 mm | h. 67.2 mm; w. 68.5 mm | h. 67.2 mm; w. 68.5 mm | h. 62 mm; w. 68.5 mm | h. 67.2 mm; w. 68.5 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h | 24 h | 24 h | 24 h |

## ECO MAXI 4222/700

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4222/700ABSA | Adult Electrostatic Filter Bulk Packed | Green | 350 |
| 4222/700BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 4222/700BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 4222/700BSSA | Adult Electrostatic Filter Sterile blister packed | Green | 50 |

## ECO MAXI 4222/701 & 4222/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4222/701ABSA | Adult Electrostatic Filter Bulk Packed | Green | 350 |
| 4222/01ABSA | Adult Electrostatic Filter Bulk Packed | Transparent | 350 |
| 4222/701BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 4222/01BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Transparent | 200 |
| 4222/701BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 4222/01BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Transparent | 50 |
| 4222/701BSSA | Adult Electrostatic Filter Sterile blister packed | Green | 50 |
| 4222/01BSSA | Adult Electrostatic Filter Sterile blister packed | Transparent | 50 |
| 4222/01DDKBAUA | Adult Electrostatic Filter with Expandable Catheter Mount and Straight Adaptor pouch packed | Transparent | 50 |
| 4222/01DFKBAUA | Adult Electrostatic Filter with Expandable Tube Catheter Mount Clinic Clean pouch packed | Transparent | 50 |

Filter Kits

## ECO MAXI 4222/702 & 4222/02

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4222/702ABSA | Adult Electrostatic Filter Bulk Packed | Green | 350 |
| 4222/02ABSA | Adult Electrostatic Filter Bulk Packed | Transparent | 350 |
| 4222/702BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 4222/02BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Transparent | 200 |
| 4222/702BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 4222/02BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Transparent | 50 |
| 4222/702BSSA | Adult Electrostatic Filter Sterile blister packed | Green | 50 |
| 4222/02BSSA | Adult Electrostatic Filter Sterile blister packed | Transparent | 50 |
| 4222/02DDKBAUA | Adult Electrostatic Filter with Expandable Catheter Mount and Straight Adaptor pouch packed. | Transparent | 50 |
| 4222/02DFKBAUA | Adult Electrostatic Filter with Expandable Tube Catheter Mount Clinic Clean pouch packed | Transparent | 50 |

Filter Kits

## ECO MAXI 4222/703 & 4222/03

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4222/703ABSA | Adult Electrostatic Filter Bulk Packed | Green | 350 |
| 4222/03ABSA | Adult Electrostatic Filter Bulk Packed | Transparent | 350 |
| 4222/703BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 4222/03BAUA | Adult Electrostatic Filter Clinic Clean pouch packed | Transparent | 200 |
| 4222/703BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 4222/03BRSA | Adult Electrostatic Filter Clinic Clean blister packed | Transparent | 50 |
| 4222/703BSSA | Adult Electrostatic Filter Sterile blister packed | Green | 50 |
| 4222/03BSSA | Adult Electrostatic Filter Sterile blister packed | Transparent | 50 |

## ECO MAXI 4222/705

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4222/705ABSA | Adult Electrostatic Filter Bulk Packed | Green | 50 |

## FLOWBACK FR004

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| FR004AKRET200A00 | Adult Breathing Electrostatic Filter - FLOWBAC bulk | Transparent | 350 |
| FR004SKRET200A00 | Adult Breathing Electrostatic Filter - FLOWBAC sterile | Transparent | 50 |
| FR004AKRET200D00 | Adult Breathing Electrostatic Filter – FLOWBAC bulk | Blue | 350 |
| FR004SKRET200D00 | Adult Breathing Electrostatic Filter - FLOWBAC sterile | Blue | 50 |

Made at GVS Brazil

# ECO MINI • ECO MICRO

| Code | ECO MINI 9066/701 | ECO MINI 9067/700 | ECO MICRO 9080/700 |
|---|---|---|---|
| Version | STRAIGHT PEDIATRIC | ANGLED PEDIATRIC | ANGLED NEONATAL |
| Method | Electrostatic | Electrostatic | Electrostatic |
| Housing Material | Polypropylene | Polypropylene | Polypropylene |
| Media | Synthetic Electrostatic | Synthetic Electrostatic | Synthetic Electrostatic |
| Filtration Efficiency BFE | 99.9997% | 99.9998% | 99.9985% |
| Filtration Efficiency VFE | 99.9989% | 99.9995% | 99.977% |
| Resistance @ 5L/min | N.A. | N.A. | 44.8 Pa |
| Resistance @ 10L/min | N.A. | N.A. | 93.1 Pa |
| Resistance @ 15L/min | 87 Pa | 79 Pa | 142.7 Pa |
| Resistance @ 30L/min | 185 Pa | 178.5 Pa | N.A. |
| Resistance @ 60L/min | 418 Pa | 396 Pa | N.A. |
| Tidal Volume Range | 100-1500 ml | 90-1500 ml | > 45 ml |
| Effective Filtration Area | 13.0 $cm^2$ | 13.0 $cm^2$ | 13.0 $cm^2$ |
| Filter Efficiency | 96.2% | 97% | 90.7% |
| Dead Space | 21.5 ml | 32 ml | 13 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 15F - 22F/15M |
| Sampling Port | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 20 g | 19 g | 9 g |
| Dimensions | h. 73.0 mm; w. 48.0 mm | h. 83.0 mm; w. 56.0 mm | h. 44.0 mm; w. 59.0 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h |

### ECO MINI 9066/701

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9066/701ABSA | Pediatric Electrostatic Filter bulk packed | Green | 350 |
| 9066/701BAUA | Pediatric Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 9066/701BRSA | Pediatric Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 9066/701BSSA | Pediatric Electrostatic Filter Sterile blister packed | Green | 50 |

### ECO MINI 9067/700

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9067/700ABSA | Pediatric Electrostatic Filter bulk packed | Green | 350 |
| 9067/700BRSA | Pediatric Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 9067/700BSSA | Pediatric Electrostatic Filter Sterile blister packed | Green | 50 |

### ECO MICRO 9080/700

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9080/700ABSA | Neonatal Electrostatic Filter Bulk Packed | Green | 800 |
| 9080/700BAUA | Neonatal Electrostatic Filter Clinic Clean pouch packed | Green | 200 |
| 9080/700BRSA | Neonatal Electrostatic Filter Clinic Clean blister packed | Green | 50 |
| 9080/700BSSA | Neonatal Electrostatic Filter Sterile blister packed | Green | 50 |

# ECO MAXIPLEAT • HEPA

## GVS High-Efficiency particulate arresting filter

GVS HEPA are bacterial and viral filters providing a highly effective barrier to airborne bacterial and viral organisms. GVS HEPA filters present minimal resistance to gas flow and great heat and moisture exchange properties.

| Code | ECO MAXI PLEATED 4244/700 | ECO MAXI PLEATED 4244/701 |
|---|---|---|
| Version | ANGLED ADULT | STRAIGHT ADULT |
| Method | Mechanical HEPA | Mechanical HEPA |
| Housing Material | Polypropylene | Polypropylene |
| Media | Pleated Glass Microfibre | Pleated Glass Microfibre |
| Filtration Efficiency BFE | 99.999989% | 99.999989% |
| Filtration Efficiency VFE | 99.99985% | 99.99985% |
| Resistance @ 30L/min | 143 Pa | 156 Pa |
| Resistance @ 60L/min | 310 Pa | 326 Pa |
| Resistance @ 90L/min | 515 Pa | 508 Pa |
| Tidal Volume Range | 200-1500 ml | 200-1500 ml |
| Effective Filtration Area | 27.34 $cm^2$ | 27.34 $cm^2$ |
| Filter Efficiency | 99.971% | 99.971% |
| Dead Space | 66 ml | 48.5 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M |
| Sampling Port | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 42 g | 40 g |
| Dimensions | h. 92.0 mm; w. 68.5 mm | h. 81.5 mm; w. 68.5 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h |

### ECO MAXI PLEATED 4244/700

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4244/700ABSA | Adult Mechanical HEPA Filter Bulk Packed | Green | 350 |
| 4244/700BAUA | Adult Mechanical HEPA Filter Clinic Clean pouch packed | Green | 200 |
| 4244/700BRSA | Adult Mechanical HEPA Filter Clinic Clean blister packed | Green | 50 |
| 4244/700BSSA | Adult Mechanical HEPA Filter Sterile blister packed | Green | 50 |

### ECO MAXI PLEATED 4244/701

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4244/701ABSA | Adult Mechanical HEPA Filter bulk packed | Green | 350 |
| 4244/01BAUA | Adult Mechanical HEPA Filter Clinic Clean pouch packed | Transparent | 200 |
| 4244/701BRSA | Adult Mechanical HEPA Filter Clinic Clean blister packed | Green | 50 |
| 4244/701BSSA | Adult Mechanical HEPA Filter Sterile blister packed | Green | 50 |
| 4244/01BTUA | Adult Mechanical HEPA Filter Sterile pouch packed | Transparent | 50 |

• Product is available without luer lock gas sampling port as code 4244/702

*Products Independently tested, data available upon request*

# ECO MAXI

• HMEF - ELECTROSTATIC & HEPA •

GVS MAF offers a range of HMEF for use within Anesthesia, Respiratory and Critical Care clinical areas. Indicated for use with patients whose upper airways are being bypassed by an artificial tracheal airway or receiving artificial ventilator support. This removes the patient's ability to filter and humidify inspired gases. Medical gases are much colder and dryer than those, which we would normally breathe so the problem is exacerbated during Anesthesia and Ventilation.

| Code | ECO MAXI 4333/711 | ECO MAXI 4333/761 | ECO MAXI 4244/711 | ECO MAXI 4244/761 | ECO MIDI 9064/711 | ECO MIDI 9065/710 |
|---|---|---|---|---|---|---|
| Version | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | ANGLED ADULT |
| Method | Electrostatic HMEF | Electrostatic HMEF | Mechanical HEPA HMEF | Mechanical HEPA HMEF | Electrostatic HMEF | Electrostatic HMEF |
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Media | Synthetic Electrostatic Polyurethane Foam | Corrugated Paper | Synthetic Electrostatic Polyurethane Foam | Corrugated Paper | Synthetic Electrostatic Polyurethane Foam | Synthetic Electrostatic Polyurethane Foam |
| Filtration Efficiency BFE | 99.9998% | 99.9998% | 99.99989% | 99.99989% | 99.9996% | 99.999% |
| Filtration Efficiency VFE | 99.9998% | 99.9998% | 99.999993% | 99.999993% | 99.9992% | 99.999% |
| Resistance @ 30L/min | 96 Pa | 97 Pa | 129 Pa | 129 Pa | 118 Pa | 124 Pa |
| Resistance @ 60L/min | 224 Pa | 237 Pa | 305 Pa | 305 Pa | 270 Pa | 269 Pa |
| Resistance @ 90L/min | 398 Pa | 430 Pa | 542 Pa | 542 Pa | 666 Pa | 650 Pa |
| Moisture output @VT 500 ml | 34 mg/L | 31.5 mg/L | 30 mg/L | 30 mg/L | 30.1 mg/L | > 31 mg/L |
| Tidal Volume Range | 150-1500 ml | 200-1500 ml | 200-1500 ml | 200-1500 ml | 120-1500 ml | 120-1500 ml |
| Effective Filtration Area | 27.3 $cm^2$ | 27.3 $cm^2$ | 290,40 $cm^2$ | 290,40 $cm^2$ | 13.0 $cm^2$ | 13.0 $cm^2$ |
| Filter Efficiency | 98.98% | 91.68% | 99.9986% | 99.9986% | 81% | 73% |
| Dead Space | 50.5 ml | 50.5 ml | 55 ml | 55 ml | 35 ml | 41 ml |
| Connections | 22M/15F-22F/15M | 22M/15F-22F/15M | 22M/15F-22F/15M | 22M/15F-22F/15M | 22M/15F-22F/15M | 22M/15F-22F/15M |
| Sampling Port | Yes | Yes | Yes | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 27 g | 27 g | 39 g | 39 g | 19.6 g | 21 g |
| Dimensions | h. 77.0 mm; w. 68.5 mm | h. 81.5 mm; w. 68.5 mm | h. 84.9 mm; w. 68.5 mm | h. 84.9 mm; w. 68.5 mm | h. 81.4 mm; w. 48.1 mm | h. 91.3 mm; w. 56.2 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h | 24 h | 24 h | 24 h |

## ECO MAXI 4333/711

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/711ABSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF) bulk packed | Green | 350 |
| 4333/01BAUA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF) Clear Clinic Clean pouch packed | Transparent | 200 |
| 4333/711BRSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF) Clinic Clean blister packed | Green | 50 |
| 4333/711BSSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF) Sterile blister packed | Green | 50 |

- Product is available in straight version without luer lock gas sampling port as code 4333/712
- Product is available in angled version as code 4333/710
- Product is available with expandable catheter mount and straight adaptor as code 4333/01DDK

## ECO MAXI 4333/761

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/761ABSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF with corrugated paper) bulk packed | Green | 350 |
| 4333/761BAUA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF with corrugated paper) Clinic Clean pouch packed | Green | 200 |
| 4333/761BRSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF with corrugated paper) Clinic Clean blister packed | Green | 50 |
| 4333/761BSSA | Adult Heat Moisture Exchanger Electrostatic Filter (HMEF with corrugated paper) Sterile blister packed | Green | 50 |

- Product is available in angled version as code 4333/760
- Product is available in straight version without luer lock gas sampling port as code 4333/762

## ECO MAXI 4244/711

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4244/711ABSA | Adult Mechanical HEPA Filter (HMEF) bulk packed | Green | 350 |
| 4244/711BAUA | Adult Mechanical HEPA Filter (HMEF) Clinic Clean pouch packed | Green | 200 |
| 4244/711BRSA | Adult Mechanical HEPA Filter (HMEF) Clinic Clean blister packed | Green | 50 |
| 4244/711BSSA | Adult Mechanical HEPA Filter (HMEF) Sterile blister packed | Green | 50 |

- Product is available in straight version without luer lock gas sampling port as code 4244/712
- Product is available in angled version as code 4244/710

## ECO MAXI 4244/761

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4244/761ABSA | Adult Mechanical HEPA Filter (HMEF with corrugated paper) bulk packed | Green | 350 |
| 4244/761BAUA | Adult Mechanical HEPA Filter (HMEF with corrugated paper) Clinic Clean pouch packed | Green | 200 |
| 4244/761BRSA | Adult Mechanical HEPA Filter (HMEF with corrugated paper) Clinic Clean blister packed | Green | 50 |
| 4244/761BSSA | Adult Mechanical HEPA Filter (HMEF with corrugated paper) Sterile blister packed | Green | 50 |

## ECO MIDI 9064/711

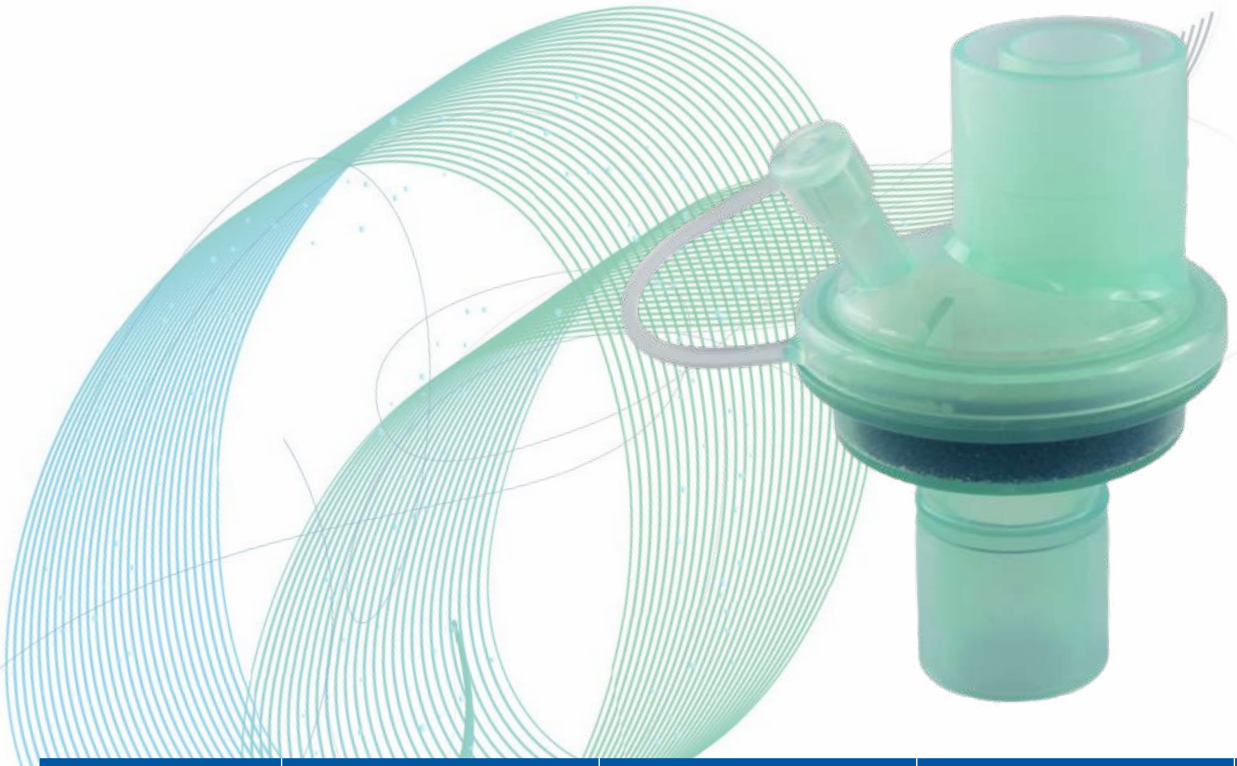
| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9064/711ABSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) bulk Packed | Green | 350 |
| 9064/711BAUA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9064/711BRSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean blister packed | Green | 50 |
| 9064/711BSSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Sterile blister packed | Green | 50 |

## ECO MIDI 9065/710

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9065/710ABSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) bulk packed | Green | 350 |
| 9065/710BAUA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9065/710BRSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean blister packed | Green | 50 |
| 9065/710BSSA | Adult Electrostatic Filter with Heat Moisture Exchanger (HMEF) Sterile blister packed | Green | 50 |

*Products Independently tested, data available upon request*

# ECO MINI



| Code | ECO MINI 9066/711 | ECO MINI 9066/761 | ECO MINI 9067/710 | ECO MICRO 9080/710 |
|---|---|---|---|---|
| Version | STRAIGHT PEDIATRIC | STRAIGHT PEDIATRIC | ANGLED PEDIATRIC | ANGLED NEONATAL |
| Method | Electrostatic HMEF | Electrostatic HMEF | Electrostatic HMEF | Electrostatic HMEF |
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Media | Synthetic Electrostatic Polyurethane foam | Synthetic Electrostatic Corrugated Paper | Synthetic Electrostatic Polyurethane foam | Synthetic Electrostatic Polyurethane foam |
| Filtration Efficiency BFE | 99.9998% | 99.9998% | 99.9998% | 99.9985% |
| Filtration Efficiency VFE | 99.999% | 99.999% | 99.9995% | 99.976% |
| Resistance @ 5L/min | N.A. | N.A. | N.A. | 54 Pa |
| Resistance @ 10L/min | N.A. | N.A. | N.A. | 111 Pa |
| Resistance @ 15L/min | 105 Pa | 105 Pa | 87 Pa | 178 Pa |
| Resistance @ 30L/min | 239 Pa | 239 Pa | 190 Pa | 240 Pa |
| Resistance @ 60L/min | 577 Pa | 577 Pa | 462 Pa | 300 Pa |
| Moisture output | 35 mg/$H_2O$/l @VT 250 ml | 35 mg/$H_2O$/l @VT 250 ml | 36.5 mg/$H_2O$/l @VT 250 ml | 25.4 mg/$H_2O$/l @ VT 250 ml |
| Tidal Volume Range | 90-1500 ml | 90-1500 ml | 90-1500 ml | > 45 ml |
| Effective Filtration Area | 13.0 $cm^2$ | 13.0 $cm^2$ | 13.0 $cm^2$ | 5.94 $cm^2$ |
| Filter Efficiency | 96.2% | 96.2% | 97% | 85.1% |
| Dead Space | 21.5 ml | 21.5 ml | 29 ml | 9 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 15M |
| Sampling Port | Yes | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 19 g | 19 g | 18 g | 9 g |
| Dimensions | h. 73.0 mm; w. 48.0 mm | h. 73.0 mm; w. 48.0 mm | h. 83.0 mm; w. 48.0 mm | h. 59.0 mm; w. 37.0 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h | 24 h |

## ECO MINI 9066/711

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9066/711ABSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) bulk packed | Green | 350 |
| 9066/711BAUA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9066/711BRSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean blister packed | Green | 50 |
| 9066/711BSSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Sterile blister packed | Green | 50 |

## ECO MINI 9066/761

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9066/761ABSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) bulk packed | Green | 350 |
| 9066/761BAUA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9066/761BRSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean blister packed | Green | 50 |
| 9066/711BSSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Sterile blister packed | Green | 50 |

## ECO MINI 9067/710

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9067/710ABSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) bulk packed | Green | 350 |
| 9067/710BAUA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9067/710BRSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Clinic Clean blister packed | Green | 50 |
| 9067/710BSSA | Pediatric Electrostatic Filter with Heat Moisture Exchanger (HMEF) Sterile blister packed | Green | 50 |

## ECO MICRO 9080/710

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9080/710ABSA | Neonatal Heat Moisture Exchanger Filter (HMEF) bulk packed | Green | 350 |
| 9080/710BAUA | Neonatal Heat Moisture Exchanger Filter (HMEF) Clinic Clean pouch packed | Green | 200 |
| 9080/710BRSA | Neonatal Heat Moisture Exchanger Filter (HMEF) Clinic Clean blister packed | Green | 50 |
| 9080/710BSSA | Neonatal Heat Moisture Exchanger Filter (HMEF) Sterile blister packed | Green | 50 |

# ECO HME

GVS HME acts in a similar way to a person's upper airway, when they breathe out the media traps and retains moisture and warmth present in the expired breath, which otherwise would be lost. On the next breath the moisture and heat is released, having the effect of both warming and humidifying the inspiratory gas.

The HME GVS media has been developed to maximize the surface area, which is a key feature of the efficiency of performance. The ability to retain moisture from the gas can be further maximized by binding hygroscopic salts, which have a strong attraction to water in the foam media pad. The special binding process ensures that the media does not start attracting moisture until the patient starts to breathe through the device. A range of chemical free HME media are also increasingly in use.

| Code | ECO MAXI 4333/750 | ECO MAXI 4333/770 | ECO MAXI 4333/751 | ECO MAXI 4333/771 | ECO MIDI 9064/751 | ECO MIDI 9065/750 | ECO MIDI 9065/760 | TERMOFLOW FR003 |
|---|---|---|---|---|---|---|---|---|
| Version | ANGLED ADULT | ANGLED ADULT | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT | ANGLED ADULT | ANGLED ADULT | STRAIGHT ADULT |
| Method | HME | HME | HME | HME | HME | HME | HME | HME |
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | Polypropylene | K-Resin |
| Media | Polyurethane foam | Corrugated paper | Polyurethane foam | Corrugated paper | Polyurethane foam | Polyurethane foam | Corrugated paper | Hygroscopic Cellulose |
| Resistance @ 30L/min | 32 Pa | 32 Pa | 30 Pa | 30 Pa | 92 Pa | 32 Pa | 32 Pa | 150 Pa |
| Resistance @ 60L/min | 98 Pa | 98 Pa | 68 Pa | 68 Pa | 255 Pa | 81 Pa | 81 Pa | 220 Pa |
| Resistance @ 90L/min | 189 Pa | 189 Pa | 140 Pa | 140 Pa | 501 Pa | 227 Pa | 227 Pa | 440 Pa |
| Moisture output | 36 mg/$H_2O$/l @ VT 500 ml | 36 mg/$H_2O$/l @ VT 500 ml | 36 mg/$H_2O$ @ VT 500 ml | 36 mg/$H_2O$ @ VT 500 ml | 34 mg/$H_2O$/l @VT 500 ml | 34 mg/$H_2O$/l @VT 500 ml | 34 mg/$H_2O$/l @VT 500 ml | 31.7 mg/ $H_2O$/l |
| Tidal Volume Range | 200-1500 ml | 200-1500 ml | 150-1500 ml | 150-1500 ml | 120-1500 ml | 120-1500 ml | 120-1500 ml | > 250 ml |
| Dead Space | 66 ml | 66 ml | 53 ml | 53 ml | 34 ml | 42 ml | 42 ml | |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22F - 22M/15F |
| Sampling Port | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 27 g | 27 g | 27 g | 27 g | 21 g | 21 g | 21 g | 38.50 g |
| Dimensions | h. 88.0 mm; w. 68.0 mm | h. 88.0 mm; w. 68.0 mm | h. 77.0 mm; w. 68.5 mm | h. 77.0 mm; w. 68.5 mm | h. 81.4 mm; w. 48.1 mm | h. 91.3 mm; w. 56.2 mm | h. 91.3 mm; w. 56.2 mm | h. 74 mm; w. 88 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h | 24 h | 24 h | 24 h | 24 h | 24 h |

## ECO MAXI 4333/750

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/750ABSA | Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 4333/750BRSA | Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 4333/750BSSA | Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## ECO MAXI 4333/770

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/770ABSA | Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 4333/770BRSA | Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 4333/770BSSA | Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## ECO MAXI 4333/751

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/751ABSA | Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 4333/751BAUA | Adult Heat Moisture Exchanger (HME) Clinic Clean pouch packed | Green | 200 |
| 4333/751BRSA | Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 4333/751BSSA | Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

• Product is available without a luer lock gas sampling port as code 4333/752

## ECO MAXI 4333/771

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4333/771ABSA | Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 4333/771BAUA | Adult Heat Moisture Exchanger (HME) Clinic Clean pouch packed | Green | 200 |
| 4333/771BRSA | Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 4333/771BSSA | Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

• Product is available without a luer lock gas sampling port as code 4333/772

## ECO MIDI 9064/751

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9064/751ABSA | Small Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 9064/751BRSA | Small Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 9064/751BSSA | Small Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## ECO MIDI 9065/750

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9065/750ABSA | Small Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 9065/750BRSA | Small Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 9065/750BSSA | Small Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## ECO MIDI 9065/760

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9065/760ABSA | Small Adult Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 9065/760BRSA | Small Adult Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 9065/760BSSA | Small Adult Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## TERMOFLOW FR003

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| FR003AKRET200A00 | Adult HME Breathing Electrostatic Filter - THERMOFLOW bulk | Transparent | 50 |
| FR003SKRET200A00 | Adult HME Breathing Electrostatic Filter - THERMOFLOW sterile | Transparent | 50 |
| FR003AKRET200D00 | Adult HME Breathing Electrostatic Filter - THERMOFLOW bulk | Blue | 50 |
| FR003SKRET200D00 | Adult HME Breathing Electrostatic Filter - THERMOFLOW sterile | Blue | 50 |

Made at GVS Brazil

# ECO HME

| Code | ECO MINI 9066/751 | ECO MINI 9066/771 | ECO MINI 9067/750 |
|---|---|---|---|
| Version | STRAIGHT PEDIATRIC | STRAIGHT PEDIATRIC | ANGLED PEDIATRIC |
| Method | HME | HME | HME |
| Housing Material | Polypropylene | Polypropylene | Polypropylene |
| Media | Polyurethane foam | Corrugated paper | Polyurethane foam |
| Resistance @ 15L/min | 12.5 Pa | 12 Pa | 11.5 Pa |
| Resistance @ 30L/min | 38.5 Pa | 35 Pa | 34.5 Pa |
| Resistance @ 60L/min | 133.5 Pa | 110 Pa | 101.5 Pa |
| Moisture output | 37.4 mg/$H_2O$/l @VT 250 ml | 35 mg/$H_2O$/l @VT 250 ml | 35.7 mg/$H_2O$/l @VT 250 ml |
| Tidal Volume Range | 90-1500 ml | 90-1500 ml | 90-1500 ml |
| Dead Space | 26 ml | 26 ml | 31 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M |
| Sampling Port | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 18 g | 19 g | 19 g |
| Dimensions | h. 73.0 mm; w. 48.0 mm | h. 73.0 mm; w. 48.0 mm | h. 83.0 mm; w. 58.0 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h |

## ECO MINI 9066/751

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9066/751ABSA | Pediatric Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 9066/751BAUA | Pediatric Heat Moisture Exchanger (HME) Clinic Clean pouch packed | Green | 200 |
| 9066/751BRSA | Pediatric Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 9066/751BSSA | Pediatric Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

## ECO MINI 9066/771

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9066/771ABSA | Pediatric Heat Moisture Exchanger (HME with corrugated paper) bulk packed | Green | 350 |
| 9066/771BAUA | Pediatric Heat Moisture Exchanger (HME with corrugated paper) Clinic Clean pouch packed | Green | 200 |
| 9066/771BRSA | Pediatric Heat Moisture Exchanger (HME with corrugated paper) Clinic Clean blister packed | Green | 50 |
| 9066/771BSSA | Pediatric Heat Moisture Exchanger (HME with corrugated paper) Sterile blister packed | Green | 50 |

## ECO MINI 9067/750

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9067/750ABSA | Pediatric Heat Moisture Exchanger (HME) bulk packed | Green | 350 |
| 9067/750BAUA | Pediatric Heat Moisture Exchanger (HME) Clinic Clean pouch packed | Green | 200 |
| 9067/750BRSA | Pediatric Heat Moisture Exchanger (HME) Clinic Clean blister packed | Green | 50 |
| 9067/750BSSA | Pediatric Heat Moisture Exchanger (HME) Sterile blister packed | Green | 50 |

# ECO HME

| Code | ECO MICRO 9080/750 | ECO MICRO 9085/751 | ECO MICRO 9085/771 |
|---|---|---|---|
| Version | ANGLED NEONATAL | STRAIGHT NEONATAL PEDIATRIC | STRAIGHT NEONATAL PEDIATRIC |
| Method | Electrostatic HME | Electrostatic HME | Electrostatic HME |
| Housing Material | Polypropylene | Polypropylene | Polypropylene |
| Media | Polyurethane foam | Polyurethane foam | Corrugated paper |
| Resistance @ 5L/min | 6.8 Pa | 43 Pa | 25 Pa |
| Resistance @ 10L/min | 15.24 Pa | 111 Pa | 48 Pa |
| Resistance @ 15L/min | 22.54 Pa | 204 Pa | 81 Pa |
| Moisture output | 30.6 mg/$H_2O$/l @VT 250 ml | 26.5 mg/$H_2O$/l @VT 250 ml | 22 mg/$H_2O$/l @VT 250 ml |
| Tidal Volume Range | > 45 ml | 15 - 50 ml | 15 - 50 ml |
| Dead Space | 10.5 ml | 3 ml | 3 ml |
| Connections | 22M/15F - 15M | 15F - 15M | 15F - 15M |
| Sampling Port | Yes | No | No |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 9 g | 3.4 g | 4 g |
| Dimensions | h. 59.2 mm; w. 37.0 mm | h. 38.2 mm; w. 21.7 mm | h. 38.2 mm; w. 21.7 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h |

## ECO MICRO 9080/750

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9080/750ABSA | Neonatal Heat Moisture Exchanger Filter (HME) Bulk Packed | Green | 350 |
| 9080/750BAUA | Neonatal Heat Moisture Exchanger Filter (HME) Clinic Clean pouch packed | Green | 200 |
| 9080/750BRSA | Neonatal Heat Moisture Exchanger Filter (HME) Clinic Clean blister packed | Green | 50 |
| 9080/750BSSA | Neonatal Heat Moisture Exchanger Filter (HME) Sterile blister packed | Green | 50 |

## ECO MICRO 9085/751

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9085/751ABSA | Pediatric/Neonatal HME/Low Volume Tracheostomy bulk packed | Green | 350 |
| 9085/751BRSA | Pediatric/Neonatal HME/Low Volume Tracheostomy Clinic Clean blister packed | Green | 50 |
| 9085/751BSSA | Pediatric/Neonatal HME/Low Volume Tracheostomy Sterile blister packed | Green | 50 |

## ECO MICRO 9085/771

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9085/771ABSA | Pediatric/Neonatal HME with corrugated paper/Low Volume Tracheostomy bulk packed | Green | 350 |
| 9085/01BAUA | Pediatric/Neonatal HME with corrugated paper/Low Volume Tracheostomy Clinic Clean pouch packed | Transparent | 200 |
| 9085/771BRSA | Pediatric/Neonatal HME with corrugated paper/Low Volume Tracheostomy Clinic Clean blister packed | Green | 50 |
| 9085/771BSSA | Pediatric/Neonatal HME with corrugated paper/Low Volume Tracheostomy Sterile blister packed | Green | 50 |

# COMFORT-FIT

| Code | 8866/01 | 8866/100 | 8866/50 |
|---|---|---|---|
| Version | STRAIGHT ADULT | STRAIGHT ADULT | STRAIGHT ADULT |
| Method | Bacterial Viral | Electrostatic HMEF | HME |
| Housing Material | Polypropylene | Polypropylene | Polypropylene |
| Media | Electrostatic Synthetic Fiber | Polyurethane foam | Polyurethane foam |
| Filtration Efficiency BFE | N.A. | 99.99996% | N.A. |
| Filtration Efficiency VFE | N.A. | 99.9997% | N.A. |
| Resistance @ 30L/min | 72 pa | 96 pa | 98 Pa |
| Resistance @ 60L/min | 192.5 Pa | 267 Pa | N.A |
| Resistance @ 90L/min | 340.5 Pa | 539 Pa | N.A |
| Moisture loss | N.A. | 11.4 mg/$H_2O$/l @ VT 500 ml | 11.4 mg/$H_2O$/l @ VT 500 ml |
| Tidal Volume Range | 200-1500 ml | 90-1500 ml | 90-1500 ml |
| Effective Filtration Area | 33.43 $cm^2$ | 33.43 $cm^2$ | 33.43 $cm^2$ |
| Filter Efficiency | 97.29% | 84% | 84% |
| Dead Space | 57 ml | 76 ml | 57 ml |
| Connections | 22M/15F - 22F/15M | 22M/15F - 22F/15M | 22M/15F - 22F/15M |
| Sampling Port | Yes | Yes | Yes |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 29 g | 29 g | 29 g |
| Dimensions | h. 107.0 mm; w. 60.5 mm | h. 107.0 mm; w. 60.5 mm | h. 107 mm x w. 60.5 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h |

## COMFORT-FIT 8866/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 8866/01ABSA | Adult Electrostatic Comfort Fit Bacterial/Viral Filter bulk packed | Transparent | 350 |
| 8866/01BAUA | Adult Electrostatic Comfort Fit Bacterial/Viral Filter Clear Clinic Clean pouch packed | Transparent | 200 |
| 8866/01BASA | Adult Electrostatic Comfort Fit Bacterial/Viral Filter Clear Clinic Clean bag packed | Transparent | 50 |
| 8866/01BRSA | Adult Electrostatic Comfort Fit Bacterial/Viral Filter Clear Clinic Clean blister packed | Transparent | 50 |

## COMFORT-FIT 8866/100

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 8866/100ABSA | Adult Electrostatic Filter and HME (HMEF) bulk packed | Transparent | 350 |
| 8866/100BAUA | Adult Electrostatic Filter and HME (HMEF) Clear Clinic Clean pouch packed | Transparent | 200 |
| 8866/100BRSA | Adult Electrostatic Filter and HME (HMEF) Clear Clinic Clean blister packed | Transparent | 50 |
| 8866/100BSSA | Adult Electrostatic Filter and HME (HMEF) Clear Sterile blister packed | Transparent | 50 |

## COMFORT-FIT 8866/50

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 8866/50ABSA | Adult Electrostatic ECO Comfort Fit HME bulk packed | Transparent | 50 |
| 8866/50BAUA | Adult Electrostatic ECO Comfort Fit HME Clear Clinic Clean pouch packed | Transparent | 200 |
| 8866/50BRSA | Adult Electrostatic ECO Comfort Fit HME Clear Clinic Clean blister packed | Transparent | 50 |

# HUMI-TRAQ

The GVS HME thacheal filters are the ideal heat and moisture exchanger product family for prolonged use with spontaneously breathing patients with a tracheostomy tube.

- Maximum comfort and minimal protrusion
- Minimises the drag on the tracheostomy tube
- Full compatibility with breathing systems

| Code | Tracheal HME 9500/01 | Trach. HME - T Model 9500/710 | Trach. HME - T Model 9500/750 |
|---|---|---|---|
| Version | ADULT | ADULT | ADULT |
| Method | Electrostatic HME | Corrugated paper HME | Electrostatic HME |
| Housing Material | Polypropylene | Polypropylene | Polypropylene |
| Media | Polyurethane foam | Hygroscopic cellulose | Polyurethane foam |
| Resistance @ 30L/min | 29.5 Pa | 50 Pa | 22 Pa |
| Resistance @ 60L/min | 81.5 Pa | 114 Pa | 70 Pa |
| Resistance @ 90L/min | 163 Pa | 201 Pa | 135 Pa |
| Moisture loss | 27 mg/$H_2O$/l @ VT 500 ml | 25.9 mg/$H_2O$/l @ VT 500 ml | 27.8 mg/$H_2O$/l @ VT 500 ml |
| Tidal Volume Range | > 23.8 ml | > 25 ml | > 25 ml |
| Dead Space | 17 ml | 14 ml | 15 ml |
| Connections | Bi Directional HME 22 mm F ISO | 15 mm Patient Connector | Bi Directional HME |
| Sampling Port | Yes | No | No |
| Pyrogenicity | < 0,25 Eu/ml | < 0,25 Eu/ml | < 0,25 Eu/ml |
| Weight | 4,4 g | 3,5 g | 3,5 g |
| Dimensions | h. 30.0 mm; w. 36.0 mm | h. 38.5 mm; w. 28.5 mm | h. 38.5 mm; w. 28.5 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |
| Recommended Use | 24 h | 24 h | 24 h |

## Tracheal HME 9500/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9500/01ABSB | Adult Tracheal HME Clear bulk packed | Transparent | 350 |
| 9500/01BAUB | Adult Tracheal HME Clear Clinic Clean pouch packed | Transparent | 200 |
| 9500/01BRSB | Adult Tracheal HME Clear Clinic Clean blister packed | Transparent | 50 |
| 9500/01BSSB | Adult Tracheal HME Clear Sterile blister packed | Transparent | 50 |

## Tracheal HME 9500/710

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9500/710ABSA | Adult Eco Micro Tracheal corrugated paper HME Clear bulk packed | Transparent | 350 |
| 9500/710BAUA | Adult Eco Micro Tracheal corrugated paper HME Clear Clinic Clean pouch packed | Transparent | 200 |
| 9500/710BRSA | Adult Eco Micro Tracheal Corrugated paper HME Clear Clinic Clean blister packed | Transparent | 50 |
| 9500/710BSSA | Adult Eco Micro Tracheal Corrugated paper HME Clear Sterile blister packed | Transparent | 50 |

## Tracheal HME 9500/750

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 9500/750ABSA | Adult Eco Micro Tracheal HME bulk packed | Transparent | 350 |
| 9500/750BAUA | Adult Eco Micro Tracheal HME Clinic Clean pouch packed | Transparent | 200 |
| 9500/750BRSA | Adult Eco Micro Tracheal HME Clinic Clean blister packed | Transparent | 50 |
| 9500/750BSSA | Adult Eco Micro Tracheal HME Sterile blister packed | Transparent | 50 |

# GAS SLIMLINE

Analgesic Gas Delivery Systems are inhalation unit for the administration analgesic gas mixture (Entonox®, ALnox® etc.) specifically designed as a simple, safe and efficient way of delivering pain relief during trauma, child-birth or painful procedures.
The Delivery Systems deliver high flow rates with low triggering pressures, reducing the amount of effort required by the patient, to maintain the demanded flow.

Analgesic Gas Delivery Systems demand a specific filter with a very low resistance for reduced patient effort and able to avoid cross contamination to occur
4444/06 is the GVS Filter for Analgesic Gas Delivery

| Code | 4444/06BAUA |
|---|---|
| Version | STRAIGHT ADULT |
| Method | Electrostatic |
| Housing Material | Translucent Polypropylene |
| Media | Electrostatic Blended Synthetic Fibre |
| Resistance @ 30L/min | 118 Pa |
| Resistance @ 60L/min | 264 Pa |
| Resistance @ 90L/min | 441 Pa |
| Baterial Filtration Efficiency BFE** | 99.99995% |

| Code | 4444/06BAUA |
|---|---|
| Virus Filtration Efficiency VFE** | 99.99985% |
| Dead Space | 54 ml |
| Connections | 22F/15M - Mouthpiece |
| Sampling Port | No |
| Pyrogenicity | < 0.25 Eu/ml |
| Weight | 26 g |
| Dimensions | h. 93 mm; w. 68.6 mm |
| Operating Temperature | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C |

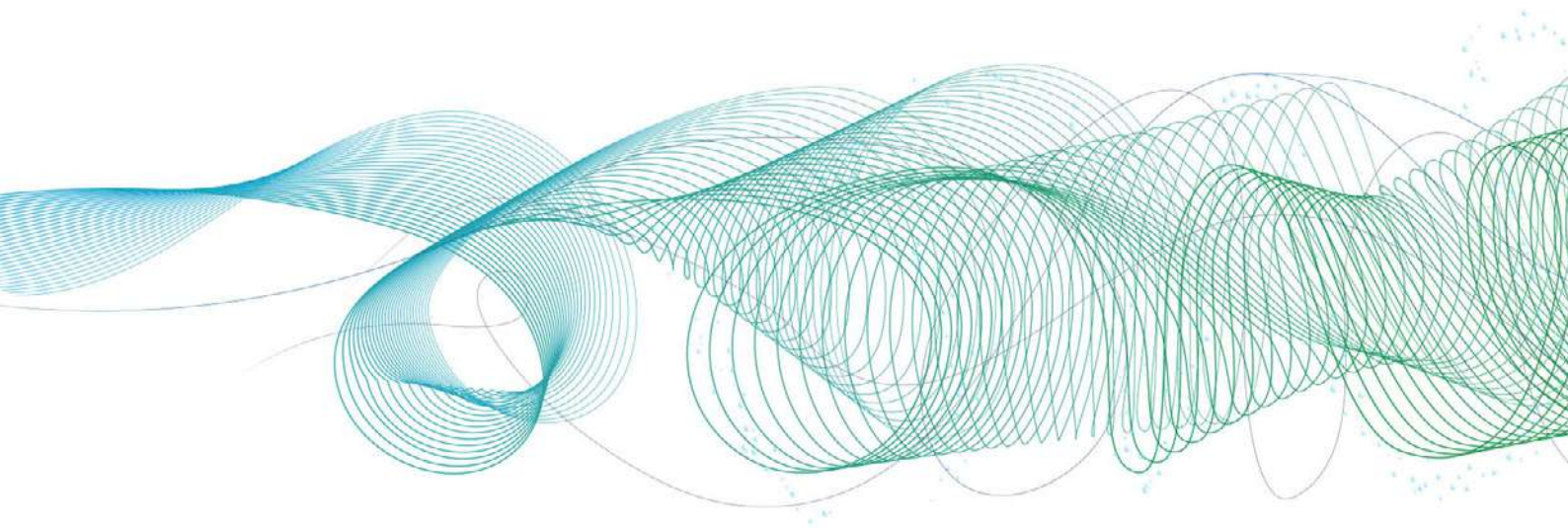
| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4444/06BAUA | Electosticatic Filter with integrated mouthpiece for Analgesic Gas Delivery | Transparent | 200 |

| Code | 4444/01BAUA |
|---|---|
| Version | STRAIGHT ADULT |
| Method | Electrostatic |
| Housing Material | Translucent Polypropylene |
| Media | Electrostatic Blended Synthetic Fibre |
| Resistance @ 30L/min | 77.5 Pa |
| Resistance @ 60L/min | 178 Pa |
| Resistance @ 90L/min | 287 Pa |
| Baterial Filtration Efficiency BFE** | 99.99995% |
| Virus Filtration Efficiency VFE** | 99.99985% |
| Dead Space | 32 ml |
| Connections | 22M/15F - 22F/15M |
| Sampling Port | No |
| Pyrogenicity | < 0.25 Eu/ml |
| Weight | 25 g |
| Dimensions | h. 78.5 mm; w. 68.5 mm |
| Operating Temperature | + 5°C - 40°C |
| Storage Temperature | 0°C - 55°C |
| Effective Filtration Area | 27.34 $cm^2$ |

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4444/01BAUA | Electosticatic Filter for Analgesic Gas Delivery | Transparent | 200 |

| Code | 4444/01BAUA |
|---|---|
| Version | STRAIGHT ADULT |
| Method | Electrostatic |
| Housing Material | Translucent Polypropylene |
| Media | Electrostatic Blended Synthetic Fibre |
| Resistance @ 30L/min | 77.5 Pa |
| Resistance @ 60L/min | 178 Pa |
| Resistance @ 90L/min | 287 Pa |
| Baterial Filtration Efficiency BFE** | 99.99995% |
| Virus Filtration Efficiency VFE** | 99.99985% |
| Dead Space | 32 ml |
| Connections | 22M/15F - 22F/15M |
| Sampling Port | No |
| Pyrogenicity | < 0.25 Eu/ml |
| Weight | 25 g |
| Dimensions | h. 78.5 mm; w. 68.5 mm |
| Operating Temperature | + 5°C - 40°C |
| Storage Temperature | 0°C - 55°C |
| Effective Filtration Area | 27.34 $cm^2$ |

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4444/01BWKBAUA | Descrizione Electosticatic Filter for Analgesic Gas Delivery and mouthpiece | Transparent | 200 |



# Spirometry
## Filters & Accessories

## GVS Lung Function Test Filters

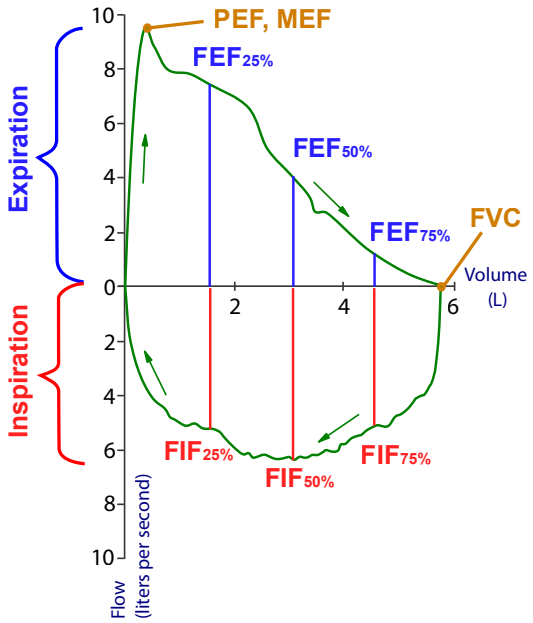
Pulmonary function tests are noninvasive tests that show the lungs healthy condition.
The tests measure lung volume, capacity, rates of flow, and gas exchange.

Pulmonary function tests measurements includes:

Tidal volume (VT). Total volume of air inhaled or exhaled during normal breathing.
Minute volume (MV). Total volume of air exhaled per minute.
Vital capacity (VC). Total volume of air exhaled from the lungs after a full inhalation.
Functional residual capacity (FRC). Volume of air left in lungs after exhaling normally.
Residual volume. Volume of air left in the lungs after a full exhalation.
Total lung capacity. Total volume of air that the lungs can hold.
Forced vital capacity (FVC). Volume of air forcibly exhaled from the lungs after taking the deepest breath possible
Forced expiratory volume (FEV). Volume of air expired during the first, second, and third seconds of the FVC test.
Forced expiratory flow (FEF). Measures exhaled volume of air to indicate if a large airway obstruction is present
Peak expiratory flow rate (PEFR). Measures if treatment is effective in improving airway diseases such as COPD

Patients performing pulmonary function tests generate flows. During these forced expirations, infective droplets are expelled and therefore the potential risk of cross-infection may be comparatively high. Immuno-compromised patients are potentially at greater risk of acquiring a variety of infections

GVS **Pulmonary Filters** plays a key role in order to essentially eliminate any potential risk of cross-infection.
With a combination of low resistance and high bacterial and viral efficiency, GVS Pulmonary Filters do not only
prevent contamination of the equipment by potential pathogen transmission via the patient‘s exhaled air but also
prevent patient cross contamination.
Furthermore it protects the staff from coming in direct contact with the exhaled air during the breathing manoeuvres.




## Potential pathogens in a Pulmonary function laboratory with suggested Precautions

| Microorganism | High-risk group/condition | Precautions |
|---|---|---|
| Mycobacterium tuberculosis | Droplets remain viable for many hours in air [8,7] | Airborne precautions GVS Pulmonary filter |
| Branhamella catarrhalis | Immune-suppressed patients | Droplet precautions GVS Pulmonary filter |
| Respiratory Viruses | Children and elderly person or immune patients | Airborne precaution plus Contact precautions should be taken for such microorganism GVS Pulmonary filter |
| Neisseria sp. | Immunocompromised patients | Airborne precaution plus droplet precautions should be taken GVS Pulmonary filter |
| Human immunodeficiency virus | Immunocompromised patients | Droplet precautions GVS Pulmonary filter |
| Heptatitis B, C virus | Immunocompromised patients | Droplet precautions can prevent infection GVS Pulmonary filter |
| Varicella zoster | All individual | Airborne precautions GVS Pulmonary filter |
| Measles | All individual | Airborne precautions plus contact precautions |
| Aspergillus | Immunocompromised patients<br>Patients suffering from other lung diseases | Airborne precautions GVS Pulmonary filter |
| Cryptococcal meningitis | Patients with defect in cell-mediated immunity | GVS Pulmonary filter |

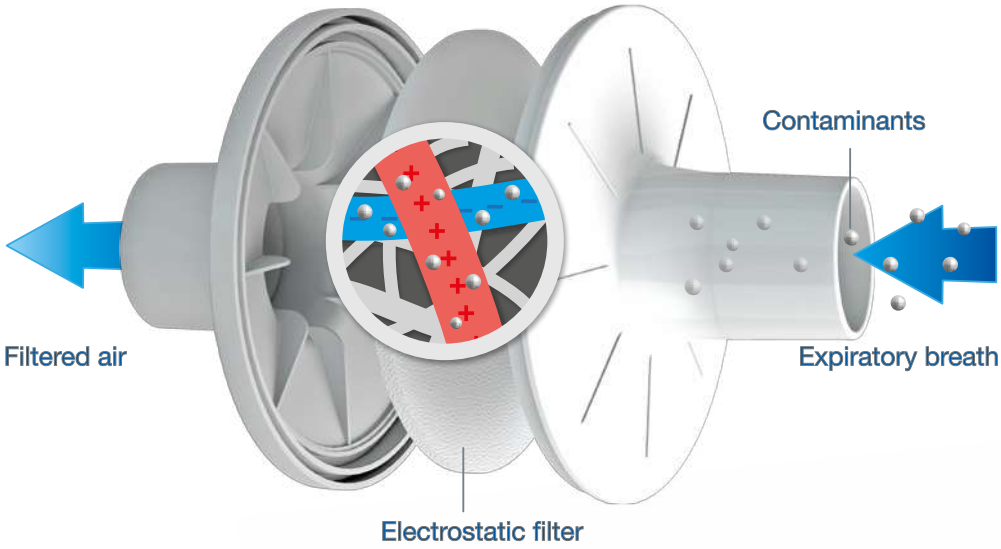
## Filter Media

GVS filters use an electrostatically charged media that stops&traps expectorated matter, bacteria and viruses for the highest effective protection on the market against cross-contamination.
Unlike other spirometry filters, GVS's electrostatic filter media is covered in a protective scrim layer. This prevents fibres becoming loose, blocking the spirometer and therefore enhancing protective performance against harmful contamination.
The filter media has hydrophobic properties to minimise droplet contamination, as well as providing a low resistance and low dead space to improve the validity and consistency of respiratory testing results and minimise rebreathing.

GVS media have passed stringent biocompatibility requiments set by the FDA and have proven to be highly efficient in term of protection against Viruses and Bacteria.
With an effectiveness protection of BFE 99.99999% and VFE 99.9998%, GVS filters are the best solution for the protection of patients, staff and instrumentation from contamination.

## Filter Housing

The filter materials composed of polymer fibers especially developed against bacteria or fungus growth.
This material withstands extreme envirnoment condition. The GVS filter material is tested for biocompatibility

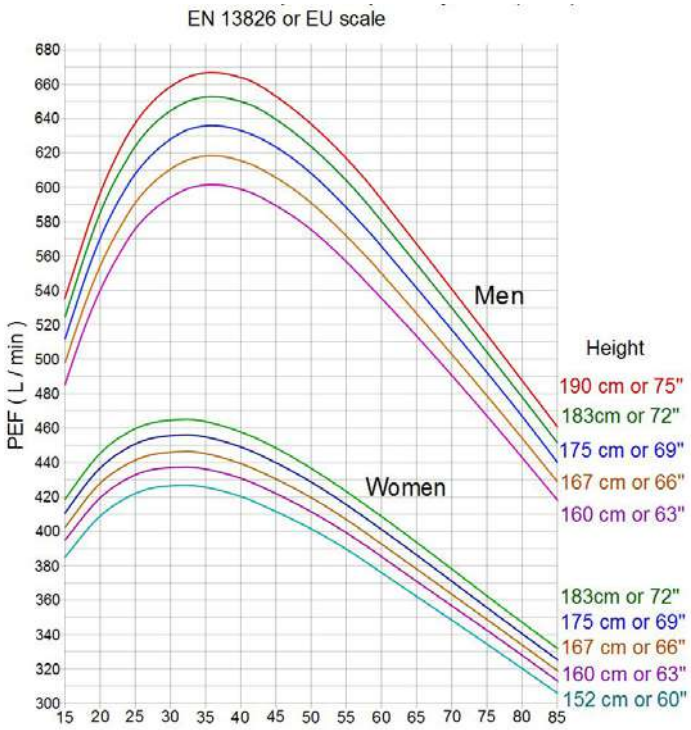



## GVS Pulmonary Filters features

- 99.9999% viral and bacterial efficiency against cross-contamination
- Low resistance to airflow
- Low resistance to peak-flow (720 L/min - 12 L/sec)
- Low functional volume
- Microbiological filtration effectiveness tested in independent laboratories to provide high efficiency against bacteria and viruses
- Integrated or disposable mouth piece improves the effectiveness of the test
- Filter housing tested for biocompatibility
- Clinically proven safety

*Products Independently tested, data available upon request*

Depending on the pulmonary funcion tests measurements, the peak expiratory flow - typically measured in units of liters per minute (L/min) - can reach rate of 720 L/min (12 L/sec).
A complete series of scientific tests were carried out on GVS Pulmarny Filter in order to grant maximal efficiency in trapping and removing bacteria / viruses and it must also have a low resistance to airflow even at peak expiratory flow rate.




## Indipendent testing

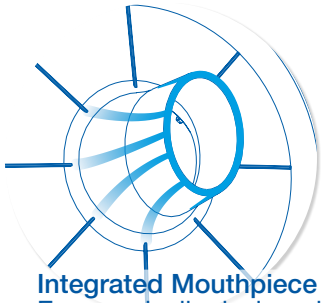
A complete series of scientific tests of the GVS Pulmonary Filters were carried out at Nelson Laboratories, Dick Munns Company, National Infection Service Public Health England and GVS Laboratories.
The tests was performed following a standard operating procedure.

- **Constant flow at a rate of 30 litres per minute**
- **Constant flow at a rate of 60 litres per minute**
- **Constant flow at a rate of 90 litres per minute**
- **Bacteria filtration efficiency test at increased challenge level testing***
- **Virus filtration efficiency test at increased challenge level testing***

***Mean particle size ( MSP) constant at 3.0 ± 0.3 µm**

# Electrostatic Spirometry Filter with integrated mouthpiece

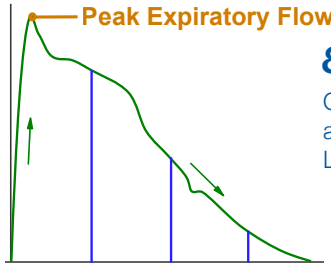
spirguard
ELECTROSTATIC SPIROMETRY FILTER



**Integrated Mouthpiece**
Ergonomically designed for a comfortable fit

| | |
|---|---|
| Filter Media | Electrostatic |
| Housing | Polypropylene |
| Flow Resistance @ 30 L/min* | < 25 Pa (< 0.25 cm $H_2O$) |
| Flow Resistance @ 60 L/min* | < 51 Pa (< 0.51 cm $H_2O$) |
| Flow Resistance @ 90 L/min* | < 78 Pa (< 0.78 cm $H_2O$) |
| Flow Resistance @ 720 L/min* | < 86 Pa (< 0.86 cm $H_2O$) |
| Baterial Filtration Efficiency BFE** | 99.99999%* up to 0.027 µm |
| Virus Filtration Efficiency VFE** | 99.9998%* up to 0.027 µm |
| Effective Filtration Area | 60 cm² |
| Pyrogenicity | < 0.25 EU/ml |
| Dead space | 80 ml |
| Weight | 37 g |
| Dimensions | h. 92.65 mm; w. 96.8 mm |

*In accordance with EN ISO 9360-1
** Mean particle size ( MSP) constant at 3.0 ± 0.3 µm
Challenge flow rate (LPM) 30 liters per minute




***86 Pa***

Outstanding Filter performance at peak expiratory flow of 720 L/min (12 L/sec)

| Code | Description | Box Qty |
|---|---|---|
| 2800/21BAUC | Electrostatic Filter Clinic Clean bag packed | 200 |
| 2800/21ABUC | Electrostatic Filter bulk packed | 200 |

Packaging: Quantity/Box 50 units. BAUC version Shipping Box 200 units.

# Electrostatic Spirometry Filter with integrated mouthpiece KIT

Nose Clip

Dimensions

h. 66.0 mm; w. 41.8 mm

Material

Polypropylene and foam pads

| Product Code | Description |
|---|---|
| 2800/21BFK | Electrostatic Spirometry Filter Kit Clinic Clean bag packed |

Packaging: Quantity/Box 50 units. BAUC version Shipping Box 200 units.

GVS 2800/21 For use with Carefusion Vmax, MasterScreen, IOS and APS pulmonary function testing system & other devices
A range of adaptors are available for the limited number of devices this filter does not fit directly.

*Products Independently tested, data available upon request*

# Electrostatic Spirometry Filter

Ergonomically designed for a comfortable fit

| | |
|---|---|
| Filter Media | Electrostatic |
| Housing | Polypropylene |
| Flow Resistance @ 30 L/min* | < 24 Pa (< 0.24 cm $H_2O$) |
| Flow Resistance @ 60 L/min* | < 56 Pa (< 0.56 cm $H_2O$) |
| Flow Resistance @ 90 L/min* | < 103 Pa (< 1.03 cm $H_2O$) |
| Baterial Filtration Efficiency BFE** | 99.99997%* up to 0.027 µm |
| Virus Filtration Efficiency VFE** | 99.99964%* up to 0.027 µm |
| Effective Filtration Area | 60 cm² |
| Pyrogenicity | < 0.25 EU/ml |
| Dead space | 81.5 ml |
| Weight | 37.2 g |
| Dimensions | h. 92.65 mm; w. 96.8 mm |

*In accordance with EN ISO 9360-1
** Mean particle size ( MSP) constant at 3.0 ± 0.3 µm
Challenge flow rate (LPM) 30 liters per minute

Ordering information:

| Product Code | Description |
|---|---|
| 2800/22BAUF | Electrostatic Filter Clinic Clean bag packed |
| 2800/22ABUF | Electrostatic Filter bulk packed |

Packaging: Quantity/Box 50 units. BAUF version Shipping Box 200 units.

# Electrostatic Spirometry Filter KIT

### Nose Clip

Dimensions
h. 66.0 mm; w. 41.8 mm
Material
Polypropylene and foam pads

### Flexible Bitegrip

Dimensions
ID. 32.0 mm; OD. 36.0 mm
Material
TPE (Thermo Plastic Elastomer)

Ordering information:

| Product Code | Description |
|---|---|
| 2800/22DAKBAUF | Electrostatic Spirometry Filter Kit clinic clean bag packed |

Packaging: Quantity/Box 50 units. Shipping box 100 units.

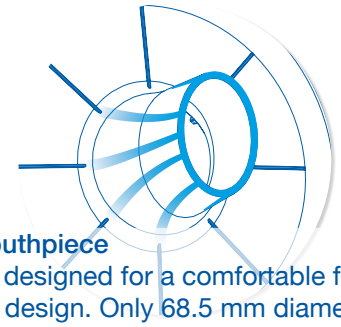
GVS 2800/22 For use with Carefusion Vmax, MasterScreen, IOS and APS pulmonary function testing system & other devices
A range of adaptors are available for the limited number of devices this filter does not fit directly.

# The Compact solution for Spirometry

In children younger than 10 years old spirometry often cannot be reliably performed. Compact filter allows the doctor to verify the correct use of the filter, avoiding possible leaks or dispersion from the mounthpiece side.

*Products Independently tested, data available upon request*

# COMPACT Electrostatic Spirometry Filter with integrated mouthpiece



**Integrated Mouthpiece**
Ergonomically designed for a comfortable fit
Compact filter design. Only 68.5 mm diameter

| | |
|---|---|
| Filter Media | Electrostatic |
| Housing | Polypropylene |
| Flow Resistance @ 30 L/min* | < 79 Pa (< 0.79 cm $H_2O$) |
| Flow Resistance @ 60 L/min* | < 160 Pa (< 1.60 cm $H_2O$) |
| Flow Resistance @ 90 L/min* | < 259 Pa (< 2.59 cm $H_2O$) |
| Baterial Filtration Efficiency BFE** | 99.99%* up to 0.027 µm |
| Virus Filtration Efficiency VFE** | 99.96%* up to 0.027 µm |
| Effective Filtration Area | 28 $cm^2$ |
| Pyrogenicity | < 0.25 EU/ml |
| Dead space | 71.45 ml |
| Weight | 25 g |
| Dimensions | h. 95 mm; w. 68.5 mm |

*In accordance with EN ISO 9360-1
** Mean particle size ( MSP) constant at 3.0 ± 0.3 µm
Challenge flow rate (LPM) 30 liters per minute

Ordering information:

| Product Code | Description |
|---|---|
| 2800/728BAUA | Electrostatic Filter Clinic Clean bag packed |
| 2800/728ABUA | Electrostatic Filter bulk packed |

Packaging: Quantity/Box 50 units. BAUA version Shipping Box 200 units.

# COMPACT Electrostatic Spirometry Filter with integrated mouthpiece KIT

**Nose Clip**
Dimensions
h. 66.0 mm; w. 41.8 mm
Material
Polypropylene and foam pads

| Product Code | Description |
|---|---|
| 2800/728BFK | Compact Electrostatic Spirometry Filter Kit clinic clean bag packed |

Packaging: Quantity/Box 100 units. BAUA version Shipping Box 200 units.

GVS 2800/728 For use with Carefusion Vmax, MasterScreen, IOS and APS pulmonary function testing system & other devices
A range of adaptors are available for the limited number of devices this filter does not fit directly.

GVS 2800/728 For use with Carefusion Vmax, MasterScreen, IOS and APS pulmonary function testing system & other devices

## Nose Clip

Dimensions
h. 66.0 mm; w. 41.8 mm
Material
Polypropylene and foam pads
Ordering information:

| Product Code | Description |
|---|---|
| A508BAUA | Disposable Noseclip Clinic Clean pouch packed |
| A508BPUA | Disposable Noseclip bulk packed |

Packaging: Quantity/Box 50 units. BAUA version Shipping Box 400 units.

## Flexible Bitegrip

Dimensions
ID. 32.0 mm; OD. 36.0 mm
Material
TPE (Thermo Plastic Elastomer)
Ordering information:

| Product Code | Description |
|---|---|
| A539BAUB | Flexible Bite Grip Mouthpiece Clinic Clean bag packed |
| A539ABUA | Flexible Bite Grip Mouthpiece bulk packed |

Packaging: Quantity/Box 50 units.

## Mouthpiece

Dimensions
h. 60.0 mm; w. 31.5 mm
Material
White HDPE
Connections
22 mm Male conical connectors, based on internal diameter *
Ordering information:

| Product Code | Description |
|---|---|
| A571BAUA | Multi-Functional Medical Mouthpiece Clinic Clean bag packed |
| A571ABUA | Multi-Functional Medical Mouthpiece bulk packed |

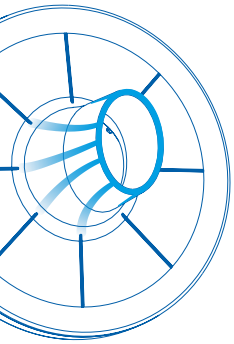
Packaging: Quantity/Box 50 units. BAUA version Shipping Box 300 units.
* Fits GVS Spiroguard products – 2800 range

## Adaptor Series

Spiroguard will fit most diffusion, lung volume and Bodyplethysmo-graph machines. A range of 29 adaptors are available where a diffe-rent diameter connector is required. Supplied individually upon customer request.
Ordering information:

| Product Code | Description |
|---|---|
| 2802/01-29 | Adaptors |

# Spiroguard Filters Diameters and Connections



| Code | Filter Media | Housing material | Machine Side | | Patient Side | |
|---|---|---|---|---|---|---|
| | | | O/D (mm) | I/D (mm) | O/D (mm) | I/D (mm) |
| 2800/01 | Electrostatic Fibre, 200g | High Impact PolyStyrene (HIPS) | 34 | 30.1 | 29.2 | 26.1 |
| 2800/02 | Electrostatic Fibre, 200g | High Impact PolyStyrene (HIPS) | 34 | 28.2 | 29.2 | 26.7 |
| 2800/03 | Electrostatic Fibre, 200g | High Impact PolyStyrene (HIPS) | 34 | 31 | 29.2 | 26.7 |
| 2800/10 | Electrostatic Fibre, 200g | PolyPropylene | 34 | 30.5 | 29.2 | 26.7 |
| 2800/11 | Electrostatic Fibre, 200g | PolyPropylene | 30.65 | 26.5 | Mouthpiece | |
| 2800/15 | Electrostatic Fibre, 200g | PolyPropylene | 30.65 | 26.5 | 25 | 20.8 |
| 2800/17 | Electrostatic Fibre, 200g | PolyPropylene | 29.3 | 26.5 | 29.2 | 26.7 |
| 2800/21 | Electrostatic Fibre, 200g | PolyPropylene | 34 | 29.3 | Mouthpiece | |
| 2800/22 | Electrostatic Fibre, 200g | PolyPropylene | 34 | 29.3 | 31.2 | 26.7 |
| 2800/23 | Electrostatic Fibre, 200g | PolyPropylene | 48.4 | 44.35 | Mouthpiece | |
| 2800/24 | Electrostatic Fibre, 200g | PolyPropylene | 48.4 | 44.35 | 30 | 26.7 |
| 2800/25 | Electrostatic Fibre, 200g | PolyPropylene | 35 | 29.1 | Mouthpiece | |
| 2800/26 | Electrostatic Fibre, 200g | PolyPropylene | 35 | 29.1 | 31.2 | 26.7 |
| 2800/27 | Electrostatic Fibre, 200g | PolyPropylene | 34 | 29.3 | Mouthpiece | |
| 2800/30 | Electrostatic Fibre, 200g | PolyPropylene | 29.2 | 27.2 | Mouthpiece | |

2800/23 2800/24

For use with nSpire test devices

2800/25 2800/26

For use with Medisoft test devices

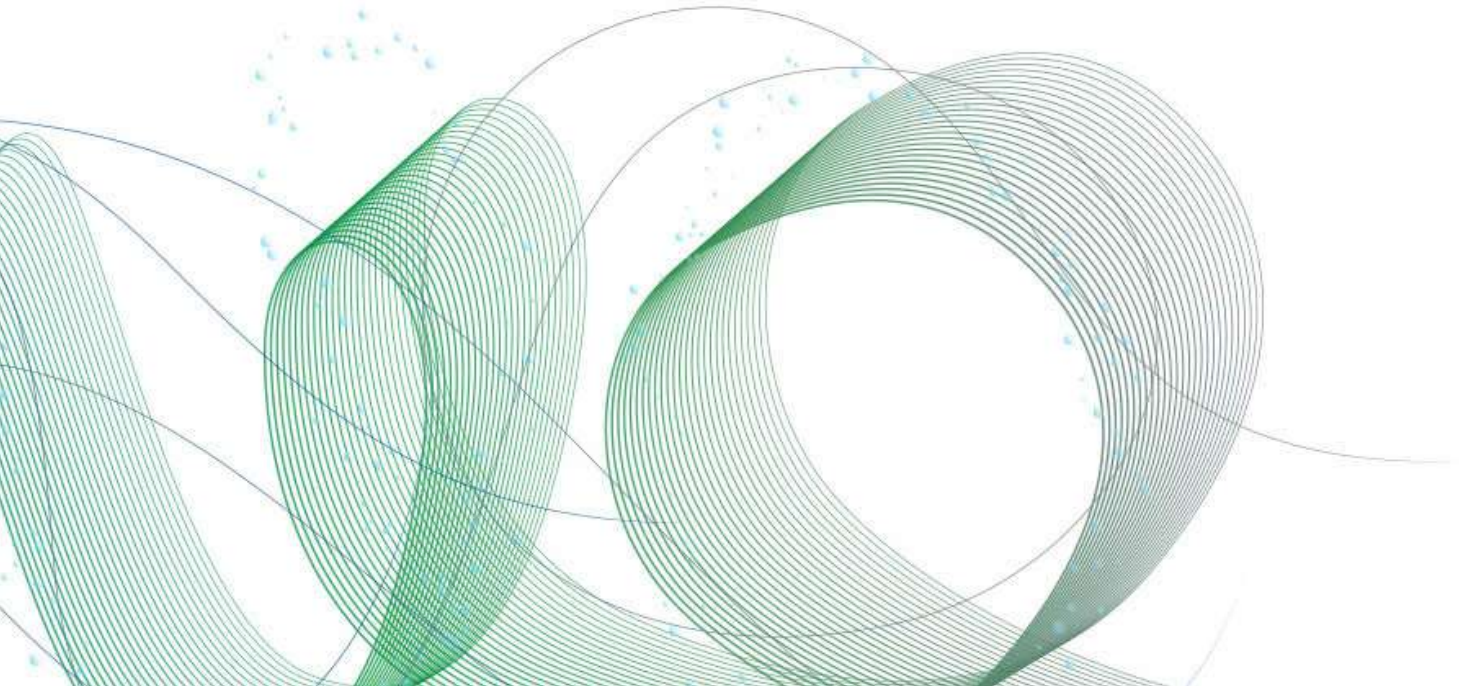
2800/23 2800/24

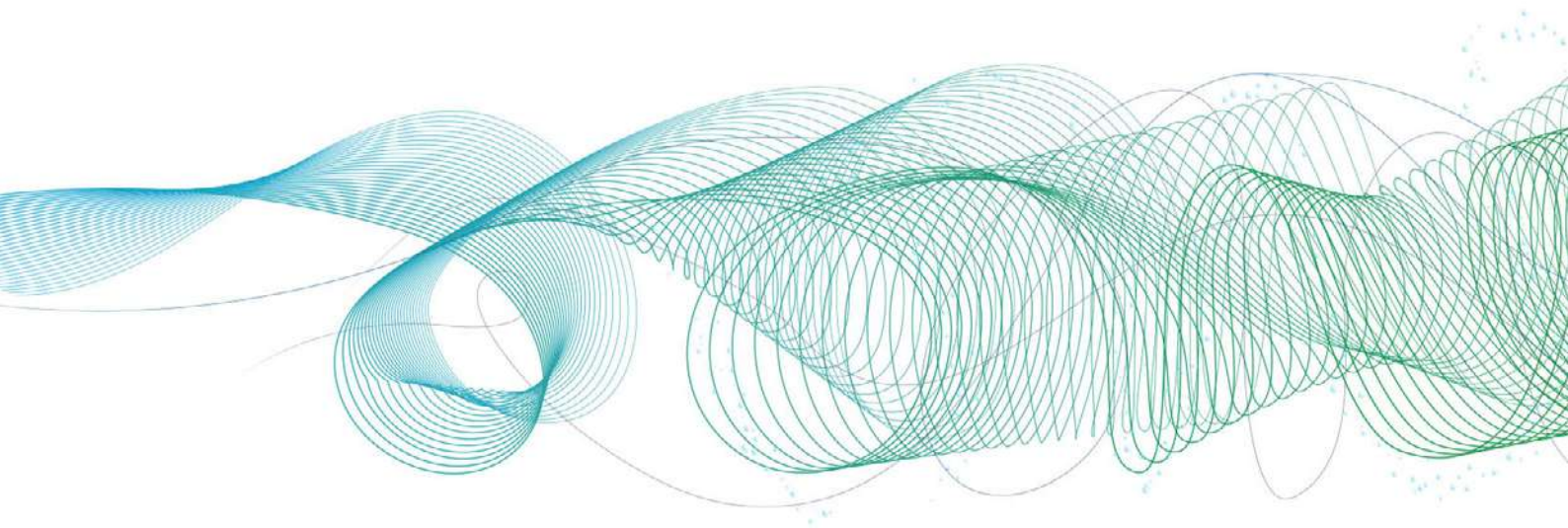
For use with Shiller test devices

# GVS Spirometry Filters fit the following instruments using the listed adaptors:

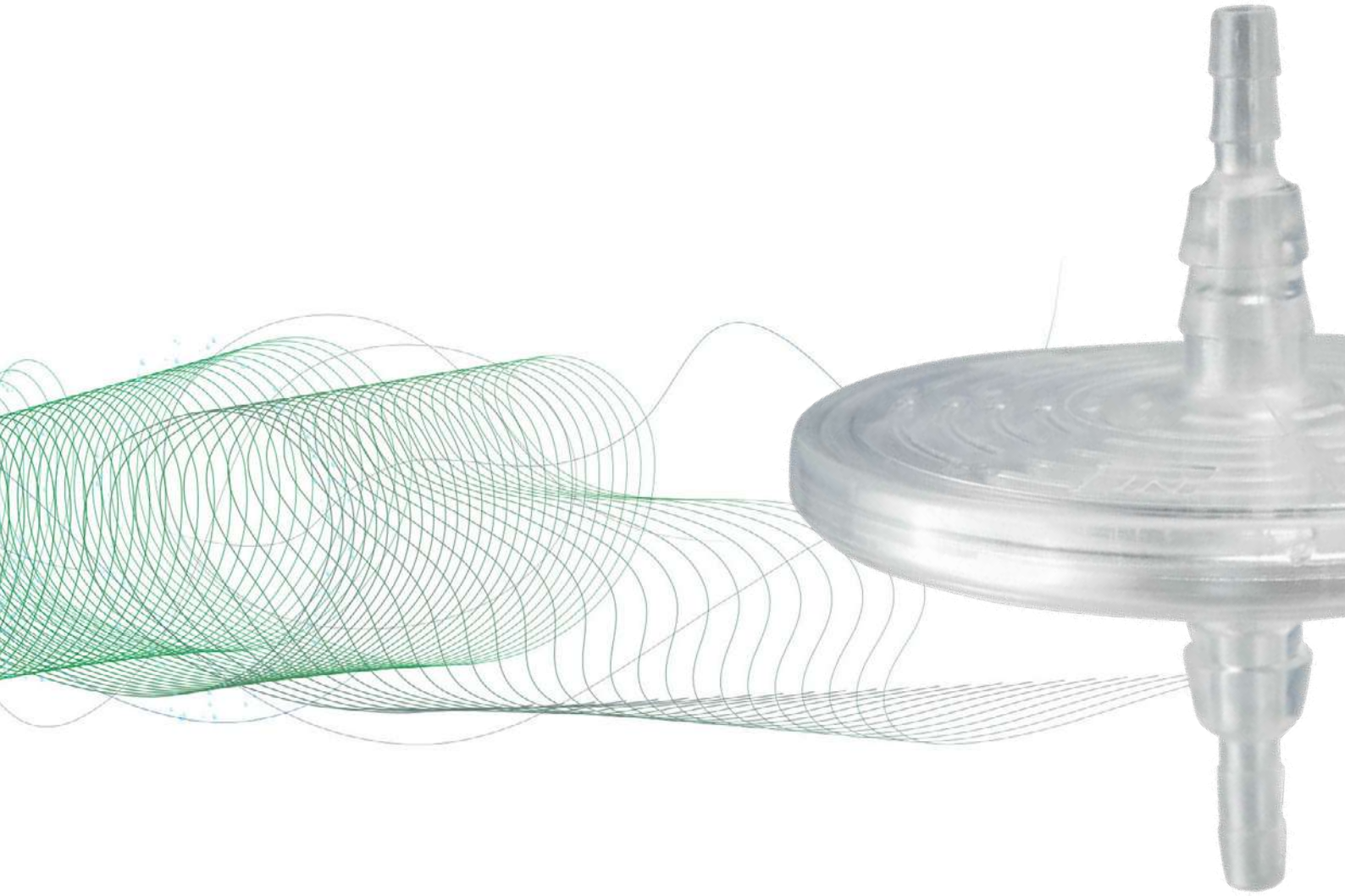
| Code | Machine Side | | Patient Side | Instrument |
|---|---|---|---|---|
| | ID (mm) | OD (mm) | ID (mm) | |
| 2802/01 | 29 | 35.2 | 34.3 | |
| 2802/02 | 28.9 | 34 | 34.3 | Jaeger |
| 2802/03 | 30.9 | 36 | 34.3 | Gould Pulmonet Closed System<br>Gould Pulmonet Bodyplethysmograph<br>V Max Diffusion<br>V Max Bodyplethysmograph<br>Sensormedics Autobox /Sensormedics Vmax |
| 2802/04 | 22.4 | 31 | 34.3 | P.K. Morgan Autolink Diffusion<br>P.K. Morgan USA-Model C Diffusion<br>Medisoft Part'n Air 5500 Diffusion<br>Medisoft Part'n Air 5500 Bodyplethysmograph |
| 2802/05 | 28.4 | 40 | 34.3 | P.K. Morgan USA-Model C Lung Volume<br>P.K. Morgan Autolink Lung Volume |
| 2802/06 | 28.8 | 40 | 34.3 | P.K. Morgan USA-Model C Bodyplethysmograph<br>P.K. Morgan Autolink Bodyplethysmograph |
| 2802/07 | 45.5 | 51 | 34.3 | Koko |
| 2802/08 | 31.2 | 38.6 | 34.3 | Glenfield |
| 2802/09 | 35.7 | 40 | 34.3 | Vitagraph<br>Tamarac<br>Burdick<br>CDX |
| 2802/10 | 22.4 | 28.4 | 34.3 | Collins CPL<br>SMC100<br>Schiller<br>DLCO |
| 2802/11 | 26.5 | 29.3 | 34.3 | |
| 2802/12 | 26.5 | 30.2 | 34.3 | Micromedical Turbine |
| 2802/13 | 25.8 | 28.4 | 34.3 | Cosmed Q BOX |
| 2802/14 | 25.8 | 28.4 | 29.3 | |
| 2802/15 | 25.8 | 28.4 | 34.3 | nSpire CPL<br>nSpire HD PFT 4000 |
| 2802/16 | 31.5 | 35 | 34.3 | Collins Cybermedic Spinaker Exel / MCG SpiroTube / Spirovit Koko Moe |
| 2802/17 | 34.9 | 39 | 34.3 | Bomi-Med Air Flow Meter |

| Code | Machine Side | | Patient Side | Instrument |
|---|---|---|---|---|
| | ID (mm) | OD (mm) | ID (mm) | |
| 2802/18 | 27 | 30.1 | 34.3 | Vitalograph SpiroDoc<br>Vitalograph Alpha<br>Vitalograph Alpha Touch<br>Vitalograph Compact<br>Vitalograph Gold Standard<br>Vitalograph Gold Standard Plus<br>Vitalograph In2itive<br>Vitalograph Micro<br>Vitalograph Pneumotrac<br>SDI Diagnostics SBG<br>SDI Diagnostics 29-1010 Spirolab<br>SDI Diagnostics Astra 100<br>SDI Diagnostics Astra 200<br>SDI Diagnostics Astra 300<br>SDI Diagnostics AstraTouch<br>MIR MiniSpir 910580<br>MIR Spirobank 910513<br>MIR Spirobank G 910512<br>MIR Spirobank II 910575<br>MIR SpiroLab III 910650<br>MIR Spirotel MST1<br>MultiSpiro (old)<br>Keystone (old)<br>CB / Cosmed Pony<br>Spirolite 303 / Spirolite 323<br>Spirometrics 2014<br>Puritan Bennett<br>S&M / Clement Clarke VM1<br>Clement Clarke VMX |
| 2802/19 | 28.8 | 40 | 34.3 | |
| 2802/20 | 30.7 | 33.1 | 34.3 | Cybermedic CM3<br>Gould Jones Satellite |
| 2802/21 | 30 | 31.2 | 34.3 | |
| 2802/22 | 28.5 | 35 | 29.2 | PB Renaissance<br>Spirotech<br>Ohio<br>Collins Survey |
| 2802/23 | 22.1 | 34 | 34 | |
| 2802/24 | 31.5 | 40 | 34.3 | Cranlea |
| 2802/25 | 34.9 | 39 | 34.3 | Brentwood 4000 |
| 2802/27 | 40.6 | 43.4 | 34.3 | Brentwood<br>Burdick<br>Fukuda |
| 2802/28 | 29.2 | 32.2 | 34.3 | Clement Clark One Flow |
| 2802/30 | 28.5 | N.A. | 30 | Medisoft |





# Device
## Filtration



# Expiratory - Ventilator Filters | HEPA

*Products Independently tested, data available upon request*

## A filtration solution for ventilators

The GVS ventilator filters reduce particles and bacteria in patients' exhaled gas, protect the ventilator's exhalation and hospital personnel from airborne pathogens.

| Code | 4020/01 | 4020/02 | 4020/03 | 4020/06 |
|---|---|---|---|---|
| Version | STRAIGHT | STRAIGHT | STRAIGHT | STRAIGHT |
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Filtration Media | Hydrophobic Glass Microfibre Media HEPA | Hydrophobic Glass Microfibre Media | Mechanical HEPA | Hydrophobic Glass Microfibre Media |
| Filtration Efficiency BFE | 99,9999% | 99,999989% | 99,9999% | 99,991% |
| Filtration Efficiency VFE | 99,9999% | 99,99985% | 99,9999% | 99,986% |
| Resistance @ 30L/min | 164 Pa | 144 Pa | 140 Pa | 95 Pa |
| Resistance @ 60L/min | 345 Pa | 302.5 Pa | 292 Pa | 194 Pa |
| Resistance @ 90L/min | 542 Pa | 483.5 Pa | 458 Pa | 315 Pa |
| Effective Filtration Area | 420 $cm^2$ | 420 $cm^2$ | 520 $cm^2$ | 520 $cm^2$ |
| Filter Efficiency | 99.9997% | 99.98% | 99.987% | 99.5% |
| Dead Space | 55 ml | 55ml | 44 ml | 44 ml |
| Connections | 22M/22F | 22mm M / 22mm F | 22M/15F | 22M - 15F |
| Sampling Port | No | No | No | No |
| Pyrogenicity | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml | <0.25 Eu/ml |
| Weight | 35 g | 35 g | 40 g | 38 g |
| Dimensions | h. 73 mm; w. 68.5 mm | h. 75 mm; w. 68 mm | h. 78 mm; w. 68.5 mm | h. 75 mm; w. 68 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C |

### 4020/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4020/01ABUA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear bulk packed | Transparent | 500 |
| 4020/01BAUA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear Clinc Clean pouch packed | Transparent | 200 |

### 4020/02

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4020/02ABUA | Adult Mechanical Filter Machine side Long Term anesthesia / ventilation Clear bulk packed | Transparent | 500 |
| 4020/02BAUA | Adult Mechanical Filter Machine side Long Term anesthesia / ventilation Clear Clinc Clean pouch packed | Transparent | 200 |

### 4020/03

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4020/03ABUA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear bulk packed | Transparent | 500 |
| 4020/03BAUA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear Clinc Clean pouch packed | Transparent | 200 |

### 4020/06

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 4020/06ABSA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear bulk packed | Transparent | 350 |
| 4020/06BAUA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear Clinc Clean pouch packed | Transparent | 200 |
| 4020/06BRSA | Adult Mechanical HEPA Filter Machine side Long Term anesthesia / ventilation Clear Clinc Clean blister packed | Transparent | 50 |

# MULTI VENT
•PORTABLE VENTILATOR FILTER•

| Code | 3000/03 | 3000/04 | 3000/740 | 1200/08 | 1200/21 |
|---|---|---|---|---|---|
| Housing Material | Styrene - Butadiene Copolymer | Styrene - Butadiene Copolymer | Styrene - Butadiene Copolymer | Polycarbonate | Polycarbonate |
| Filtration Media | Hydrophobic Glass Microfibre Media | Hydrophobic Glass Microfibre Media | Hydrophobic Glass Microfibre Media | Hydrophobic Glass Microfibre Media | Hydrophobic Glass Microfibre Media |
| Filtration Efficiency BFE | 99.9999% | 99.9999% | 99.9999% | 99.9999% | 99.98% |
| Filtration Efficiency VFE | 99.9999% | 99.999% | 99.9999% | 99.9999% | 99.99% |
| Effective Filtration Area | 2167,50 $cm^2$ | 2167,50 $cm^2$ | 2167,50 cm2 | 515 $cm^2$ | 515 $cm^2$ |
| Autoclavable | No | No | No | Up to 20 times | Up to 10 times |
| Connections | 22 mm ISO Connector | 22 mm ISO Connector | 15F/22M - 22F | 22M/15F – 22F/15M | 22M-15F |
| Pyrogenicity | < 0,25 Eu/ml | < 0,25 Eu/ml | < 0,25 Eu/ml | < 0,25 Eu/ml | < 0,25 Eu/ml |
| Weight | 17,9 g | 17,9 g | 17,9 g | 40 g | 59 g |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C | 5°C - 40°C |
| Storage Temperature | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 55°C | 0°C - 80°C |


### 3000/03

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 3000/03DAUA | Multi Ventilator Filter clinic clean bag packed | White | 12 |

### 3000/04

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 3000/04DAUA | Multi Ventilator Filter clinic clean bag packed | White | 12 |

### 3000/740

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 3000/740ABSA | Multi Ventilator Filter bulk | White | 60 |
| 3000/740BASA | Multi Ventilator Filter clinic clean bag packed | White | 60 |

### 1200/08

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1200/08HAUB | Reusable Hepa Filter clinic clean bag packed | White | 50 |

### 1200/21

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1200/21HAUA | Reusable Hepa Filter Clinic Clean bag packed | White | 50 |

# Medguard & Sca-Niox Filters

*Products Independently tested, data available upon request*

## MEDGUARD
• FILTER FOR NEBULIZER THERAPY MACHINE •

| Code | 1420/01 | 1420/03 |
|---|---|---|
| Method | Electrostatic | Electrostatic |
| Housing Material | Styrene | Styrene |
| Filtration Efficiency BFE | 99.998% | 99.99% |
| Filtration Efficiency VFE | 99.974% | 99.99% |
| Resistance @ 30L/min | 51 Pa | 40 Pa |
| Connections | 22F-22M | 22F-22M |
| Weight | 23.5 g | 23.5 g |
| Dimensions | h. 96 mm; w. 69 mm | h. 96 mm; w. 69 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C |

### 1420/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1420/01ABUA | Filter for nebulizer therapy machine bulk packed | Transparent | 400 |
| 1420/01BAUA | Filter for nebulizer therapy machine Clinic Clean pouch packed | Transparent | 200 |

### 1420/03

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1420/03ABUA | Filter for nebulizer therapy machine bulk packed | Transparent | 400 |
| 1420/03BAUA | Filter for nebulizer therapy machine Clinic Clean pouch packed | Transparent | 200 |

## SCA-NIOX
• NITRIC OXIDE SCAVENGER FILTERS •

| Code | 1898/01 | 1898/03 |
|---|---|---|
| Method | Electrostatic | Carbon disc and Electrostatic media |
| Housing Material | Clear Styrene | Clear Styrene |
| Filtration Efficiency BFE | 99.999% | 99.999% |
| Filtration Efficiency VFE | 99.999% | 99.999% |
| Connections | 22M/15F - 22F/15M | 22M/15F-22F/15M |
| Weight | 72 g | 72 g |
| Dimensions | h. 94.8 mm; w. 64.7 mm | h. 94.8 mm; w. 64.7 mm |
| Operating Temperature | 5°C - 40°C | 5°C - 40°C |

### 1898/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1898/01BAUB | Nitric oxide scavenger filter Carbon disk + Electrostatic media & CONVERSION MIX Clinic Clean pouch packed | Transparent | 10 |

### 1898/03

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 1898/03BAUB | Nitric oxide scavenger filter Carbon disk + Electrostatic media Clinic Clean pouch packed | Transparent | 50 |

*Products Independently tested, data available upon request*

# SUCTION-SAFE

**GVS Suction filters** are available with different connection sizes and fittings, making them suitable for most machines and tubing on the market.

| Filtration Media | BFE | VFE |
|---|---|---|
| PTFE 1 um | 99,9999% | 99,9999% |

**GVS Suction filters come with PTFE 1 µm membrane.**

Plytetrafluoroethylene (PTFE) is a highly hydrophobic fluoropolymer with superior flow rates.

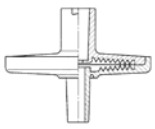
| Code | Connectors |
|---|---|
| 2000/10 | Stepped Barb - 1/8 NPT Thread |
| 2000/25 | FLL - MSL |
| 2000/50 | 3 mm Hole - 1/8 th NPT Screw Thread 18 mm |
| 2000/51 | 5.9 - 8 mm |
| 2000/52 | 1/8 NPT |
| 2000/53 | 8 mm barbed |
| 2000/54 | 8 mm HB |
| 2200/02 | 8 mm HB |

| Code | Connectors |
|---|---|
| 2200/06 | 5 - 9.5 mm HB |
| 2200/11 | 8 mm base/11 mm Lid |
| 2200/16 | 11 mm HB |
| 2200/21 | 11 mm base/15 mm Lid |
| 2200/26 | 8 mm base/15 mm Lid |
| 2200/35 | 8 mm base/7 mm Lid |
| 2200/52 | 6 mm barbed |
| 2200/55 | 9 mm base/12 mm Lid |
| 2200/60 | 11 mm base/18 mm Lid |
| 2200/67 | 8 mm HB |
| 2200/70 | 8 mm base/12 mm Lid |
| 2200/902 | 11-15 mm HB |
| 2200/910 | 11-15 mm HB |
| 2200/911 | 11-15 mm base/11 mm Lid |

Stepped Barb
1/8 NPT Thread

## 2000/10

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/10ABUA | Gas Vent/Insufflation Filter bulk packed | Transparent White ring | 1000 |



Connector FLL-MSL
Straight Male Connector

## 2000/25

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/25ABUA | Gas Vent/Insufflation Filter bulk packed | Half Blue - Half Clear | 1000 |

## 2200/02

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/02ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/02BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |
| 2200/02DIKIAUA | High Flow Suction Filter 30 mm Tubing with MLL Sterile | Transparent | 250 |

Suction Kit

## 2200/06

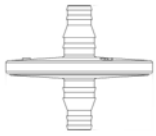
| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/06ABUB | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/06BAUB | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

## 2200/11

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/11ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/11BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

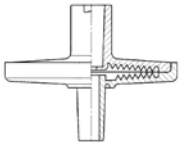
# Suction Filters

*Products Independently tested, data available upon request*



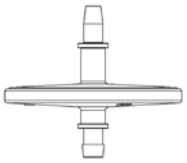
### 2200/16

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/16ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/16BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |



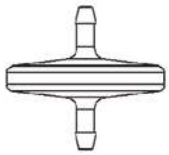
### 2200/26

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/26ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/26BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |



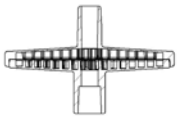
### 2200/35

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/35ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/35BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |



### 2200/52

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/52ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/52BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

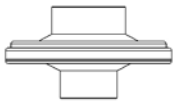


### 2200/55

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/55ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/55BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

### 2200/60

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/60ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/60BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

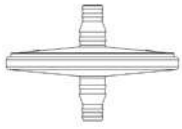


### 2200/67

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/67ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |
| 2200/67BAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

### 2200/70

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/70ABUA | High Flow Suction Filter bulk packed | Transparent | 1000 |



### 2200/902

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/902ABUD | High Flow Suction Filter bulk packed | Transparent | 500 |
| 2200/902BAUD | High Flow Suction Filter Clinic Clean bag packed | Transparent | 200 |

### 2200/910

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/910IAUA | High Flow Suction Filter Clinic Clean bag packed | Transparent | 300 |

### 2200/911

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/911BAUB | High Flow Suction Filter Clinic Clean bag packed | Transparent | 100 |

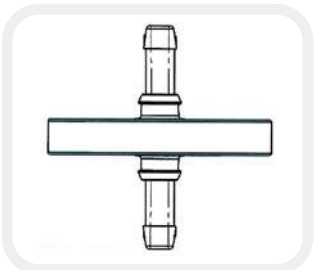
# Insufflation Filters

*Products Independently tested, data available upon request*

| Filtration Media | BFE | VFE |
|---|---|---|
| Hydrophobic Glass Micro Fiber Media | 99.999993% | 99.9995% |

| Code | Connectors |
|---|---|
| 2000/01 | 8 mm HB |
| 2000/02 | 8 mm HB |
| 2000/05 | 8 mm HB |
| 2000/06 | 5.9 - 8 mm HB |
| 2000/07 | 5.9 - 8 mm HB |
| 2000/08 | 5.9 - 8 mm HB |
| 2000/09 | 8 mm HB |
| 2000/12 | 8 mm HB |
| 2000/17 | 8 mm HB |

| Code | Connectors |
|---|---|
| 2000/18 | 8 mm HB |
| 2000/42 | 5.0 - 6.5 mm HB |
| 2000/45 | 8.4 - 11.4 mm HB |
| 2000/706 | 5.9 - 8 mm HB |
| 2200/01 | 8 mm HB |
| 2200/05 | 5 - 9.5 mm HB |
| 2200/15 | 11 mm HB |
| 2200/33 | 11 mm base/15 mm Lid |
| 2200/48 | 8 mm Base/15 mm Lid |
| 2200/56 | 6 mm HB |
| 2200/66 | 8 mm Base/11 mm Lid |
| 6421/04 | 22M/15F - 22F/15M |



Connector 8 mm HB

| Code | Colour |
|---|---|
| 2000/01 | Transparent white ring |
| 2000/02 | Transparent blue ring |
| 2000/05 | Transparent green ring |
| 2000/12 | Transparent light blue ring |
| 2000/17 | Transparent yellow ring |
| 2000/18 | Transparent white ring |
| 2000/20 | Transparent white ring |

| Packaging Version | Description | Box Qty |
|---|---|---|
| ABUA | Bulk Packed | 1000 |
| BAUA | Clinic Clean Pouch Packed | 300 |

# Insufflation Filters

*Products Independently tested, data available upon request*

Connector 5.9 - 8 mm HB

| Code | Colour |
|---|---|
| 2000/06 | Transparent white ring |
| 2000/07 | Transparent blue ring |
| 2000/08 | Transparent green ring |

| Packaging Version | Description | Box Qty |
|---|---|---|
| ABUA | Bulk Packed | 1000 |
| BAUA | Clinic Clean Pouch Packed | 300 |

Connector 8 mm HB

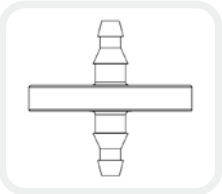
## 2000/09

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/09ABUA | Gas Vent/Insufflation Filter bulk packed | Transparent Dark blue ring | 1000 |
| 2000/09BAUA | Gas Vent/Insufflation Filter Clinic Clean pouch packed | Transparent Dark blue ring | 300 |

Connector 5.0-6.5 mm HB

## 2000/42

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/42ABUA | Gas Vent/Insufflation Filter bulk packed | Transparent White ring | 1000 |
| 2000/42BAUA | Gas Vent/Insufflation Filter Clinic Clean pouch packed | Transparent White ring | 300 |



Connector 8.4-11.4 mm HB

## 2000/45

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/45ABUA | Gas Vent/Insufflation Filter bulk packed | Transparent Light Blue Ring | 1000 |

Connector 5.9-8 mm HB

## 2000/706

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/706ABSA | Gas Vent/Insufflation Filter bulk packed | Transparent White Ring | 100 |

Connector 8 mm HB

## 2200/01

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/01ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/01BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

Connector 5 - 9.5 mm HB

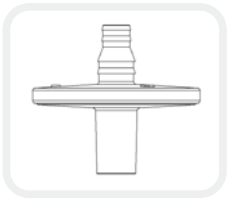
## 2200/05

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/05ABUB | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/05BAUB | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

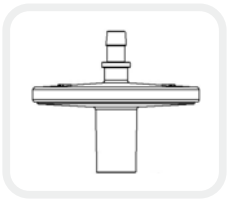
## 2200/15

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/15ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/15BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

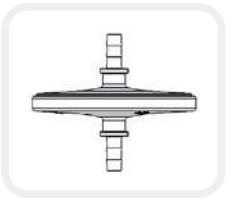
Connector 11 mm HB



Connector 11 mm base / 15 mm Lid

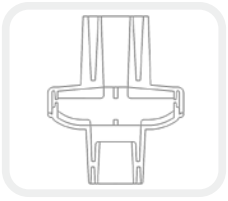


Connector 8 mm base / 15 mm Lid



Connector 6 mm HB

Connector 8 mm base / 11 mm Lid



Connector 22M/15F - 22F/15M

## 2200/33

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/33ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/33BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

## 2200/48

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/48ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/48BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

## 2200/56

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/56ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 2200/56BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

## 2200/66

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/66GAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 300 |

## 6421/04

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 6421/04ABUA | Insufflation Filter bulk packed | Transparent | 1000 |
| 6421/04BAUA | Insufflation Filter Clinic Clean bag packed | Transparent | 200 |

# Insufflation Filters | Kits

*Products Independently tested, data available upon request*

### 2200/01

| Code | Description | Box Qty |
|---|---|---|
| 2200/01DKKBAUA | Insufflation Set, Tubing 1.8m with RMLL-FLL Clinic Clean | 40 |
| 2200/01BCKBTUA | Insufflation Set, Tubing 3.1m with RMLL-Soft Connector, Sterile | 40 |
| 2200/01BVCKBAUA | Insufflation Set, Tubing 3.1m with RMLL-Soft Connector, Clinic Clean | 40 |


### 2200/05

| Code | Description | Box Qty |
|---|---|---|
| 2200/05BRKBAUB | Insufflation Set, Tubing 8mm x 11mm, 100 and 200 mm length, Clinic Clean | 200 |

### 2200/25

| Code | Description | Box Qty |
|---|---|---|
| 2200/25BUKBAUA | Insufflation Set, Tubing 3m with Soft Connector, Clinic Clean | 50 |


### 2200/62

| Code | Description | Box Qty |
|---|---|---|
| 2200/62BHKBTUA | Insufflation Set, 8mm HB Tubing 5.7m with RMLL, Pouch Sterile | 50 |

### 2000/05

| Code | Description | Box Qty |
|---|---|---|
| 2000/05BAKBTUA | Insufflation Set, 8mm HB Tubing 3.1m with RMLL, Pouch Sterile | 40 |
| 2000/05BAKBAUA | Insufflation Set, 8mm HB Tubing 3.1m with RMLL, Clinic Clean | 40 |


### 2000/18

| Code | Description | Box Qty |
|---|---|---|
| 2000/18BEKBAUA | Insufflation Set, 8mm HB Tubing 95mm Silicone, PP-White Ring, Clinic Clean | 300 |

### 2200/48

| Code | Description | Box Qty |
|---|---|---|
| 2200/48BIKBTUA | Insufflation Set, Tubing 3m with RMLL, Pouch Sterile | 40 |
| 2200/48BIKBAUA | Insufflation Set, Tubing 3m with RMLL, Clinic Clean | 40 |


### 6421/04

| Code | Description | Box Qty |
|---|---|---|
| 6421/04BPKATUA | Insufflation kit with 3M tube with RMLL Pouch Sterile | 60 |
| 6421/04BGKBTUA | Hi Flow Insufflation Kit 2,5m tube with RMLL Pouch Sterile | 40 |
| 6421/04BGKBAUA | Hi Flow Insufflation 2,5m tube with RMLL Clinic Clean | 40 |

# Smoke Evacuation Filter

*Products Independently tested, data available upon request*

## LAPARO-CLEAR

### GVS Smoke Evacuation Filters

GVS offers a number of smoke evacuation filters to minimize the health hazards associated with surgical laser plume. Our products use the most advanced filtration technology to provide the most cost effective and efficient removal of hazardous surgical smoke plumes GVS smoke evacuation filters fit directly into the major suction units on the market for safe capture of pathogens and other toxic components of surgical plume.

| Code | 2200/47 | 2200/947 |
|---|---|---|
| Version | Smoke Evacuation Filter | Smoke Evacuation Filter |
| Housing Material | Translucent Styrene-Butadiene | Clear Styrene-Butadiene Copolymer |
| Filter Media | Glass microfibre with impregnated carbon lyer | Hydrophobic PTFE 1.0 µm |
| Filtration Efficiency BFE | 99.999982% | 99.99998% |
| Filtration Efficiency VFE | 99.999995% | 99.99998% |
| Connectors | 8 mm Hose Barbed, Tubing 0,4 m with RMLL+Clamp | 11-15 mm HB |
| Max Operating Temp | 60° C | 60° C |
| Max Operating Pressure | 39 psi | 60 psi |
| Sterile Applications | Laparoscopic surgery | Laparoscopic surgery |

### 2200/47

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/47ABUA | Smoke Evacuation Filter 8 mm - 8 mm Base bulk packed bag packed | Transparent | 1000 |

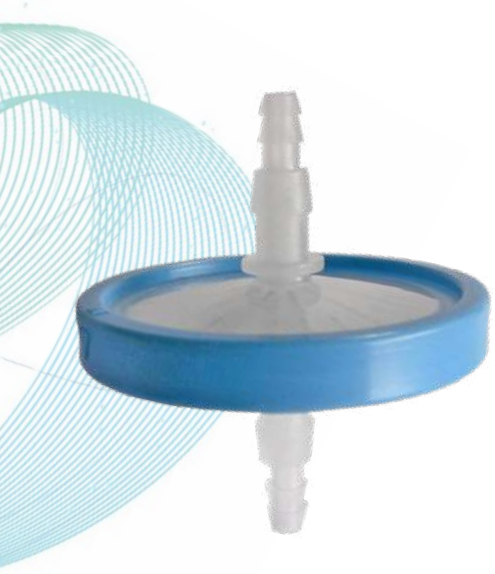
### 2200/47 Kit

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/47BBKBAUA | Laparo Clear Smoke Filtration Kit with roller clamp, Tubing 0.4 m with RMLL Clinic Clean pouch packed | Transparent | 40 |
| 2200/47BBKBTUA | Laparo Clear Smoke Filtration Kit with roller clamp, Tubing 0.4 m with RMLL Sterile pouch packed | Transparent | 80 |
| 2200/47BDKBAUA | Laparo Clear Smoke Filtration Kit without roller clamp, Tubing 0.4 m with RMLL Clinic Clean pouch packed | Transparent | 40 |
| 2200/47BDKBTUA | Laparo Clear Smoke Filtration Kit without roller clamp, Tubing 0.4 m with RMLL Sterile pouch packed | Transparent | 80 |

### 2200/947

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2200/947BAUB | Smoke Evacuation Filter 11 mm - 15 mm HB Clinic Clean pouch packed | Transparent | 200 |

*Products Independently tested, data available upon request*



VENT-SAFE
• GAS-AIR VENT FILTER •

## Gas-Air vent filters

GVS Gas-Air vent filters protect the interior environment and the atmosphere from contaminants. This filter family is essential for the protection of devices/electronics from aerosols or liquid intrusion.

*High-efficiency removal*

| Code | Filtration Media | BFE | VFE | Filtration Efficiency @ 30L/min | Resistance to Air Flow Rate @ 30L/min | Connectors |
|---|---|---|---|---|---|---|
| 2000/01 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.978% | 33.1 mBar | 8 mm HB |
| 2000/02 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.997% | 33.1 mBar | 8 mm HB |
| 2000/05 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.997% | 33.1 mBar | 8 mm HB |
| 2000/06 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.997% | 33.1 mBar | 5.9-8 mm HB |
| 2000/07 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.997% | 33.1 mBar | 5.9-8 mm HB |
| 2000/08 | Hydrophobic Glass Microfibre Media | 99.999993% | 99.9995% | 99.997% | 33.1 mBar | 5.9-8 mm HB |
| 2000/09 | Electrostatic 200 gr | 99.999% | 99.999% | NA | NA | 8 mm HB |

Connector
8 mm HB

| Code | Colour |
|---|---|
| 2000/01 | Transparent white ring |
| 2000/02 | Transparent blue ring |
| 2000/05 | Transparent green ring |
| 2000/09 | Transparent dark blue ring |

| Packaging Version | Description | Box Qty |
|---|---|---|
| ABUA | Bulk Packed | 1000 |
| BAUA | Clinic Clean Pouch Packed | 300 |

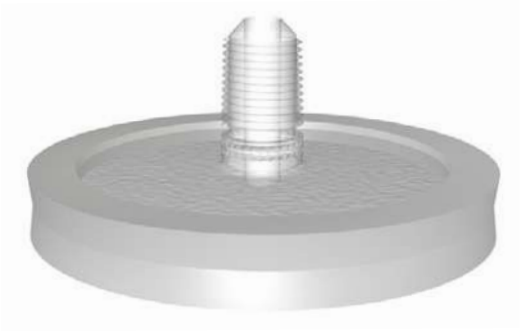
Connector
5.9-8 mm HB

| Code | Colour |
|---|---|
| 2000/06 | Transparent white ring |
| 2000/07 | Transparent blue ring |
| 2000/08 | Transparent green ring |

| Packaging Version | Description | Box Qty |
|---|---|---|
| ABUA | Bulk Packed | 1000 |
| BAUA | Clinic Clean Pouch Packed | 300 |

# Autoclave Filter

*Products Independently tested, data available upon request*



## GVS Autoclave Filters

GVS Autoclave filters are specifically designed for sterile venting of autoclaves and storage tanks. They act as a sterile vacuum break at the end of autoclave sterilization cycles.

| Code | 2000/35 | 2000/37 | 2000/38 | 2000/39 |
|---|---|---|---|---|
| Housing Material | Polypropylene | Polypropylene | Polypropylene | Polypropylene |
| Filter Media | Hydrophobic Glass Micro Fiber Media | Hydrophobic Glass Micro Fiber Media | Hydrophobic Glass Micro Fiber Media | Hydrophobic Glass Micro Fiber Media |
| Filtration Efficiency BFE | 99.993% | 99.999% | 99.999% | 99.999% |
| Filtration Efficiency VFE | 99.9969% | 99.999% | 99.9999% | 99.999% |
| Filtration Ability | 0.027 µm | 0.027 µm | 0.027 µm | 0.027 µm |
| Effective Filtration Area | 14 $cm^2$ | 14.6 $cm^2$ | 14.6 $cm^2$ | 14.6 $cm^2$ |
| Connectors | 1/8 NPT Thread Connector | 1/8 BSP Thread Connector | 1/8 NPT Thread Connector + 8 mm Barb | 1/8 NPT Thread Connector |
| Filter length | 33.5 mm | 29.6 mm | 56 mm | 25.5 mm |

### CONNECTORS LEGEND

| NPT - National Standard Pipe Thread | | BSP - British Standard Pipe | |
|---|---|---|---|
| Pipe Size (inch) | Thread Pitch (mm) | Pipe Size (inch) | Thread Pitch (mm) |
| 1/8 | 0.9407 | 1/8 | 0.907 |

### 2000/35

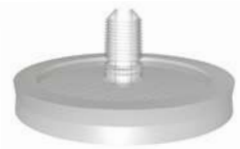
| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/35ABUA | Gas/Air Vent Filter bulk packed | White | 1000 |
| 2000/35BAUA | Gas/Air Vent Filter Clinic clean pouch packed | White | 300 |

### 2000/37

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/37ABUA | Gas/Air Vent Filter bulk packed | White | 1000 |
| 2000/37BAUA | Gas/Air Vent Filter Clinic clean pouch packed | White | 300 |

### 2000/38

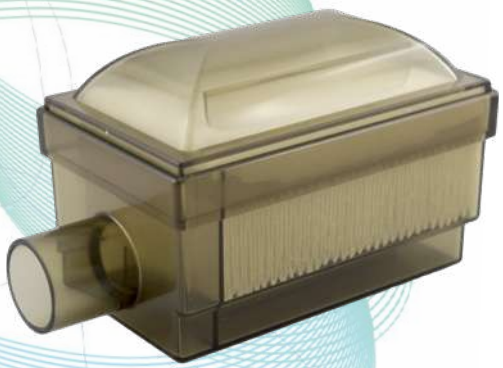
| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/38ABUA | Gas/Air Vent Filter bulk packed | White | 1000 |
| 2000/38BAUA | Gas/Air Vent Filter Clinic clean pouch packed | White | 300 |



### 2000/39

| Code | Description | Colour | Box Qty |
|---|---|---|---|
| 2000/39ABUA | Gas/Air Vent Filter bulk packed | White | 1000 |
| 2000/39BAUA | Gas/Air Vent Filter Clinic clean pouch packed | White | 300 |

OXY-SAFE
• OXYGEN CONCENTRATOR VENT FILTER •



**GVS Oxygen Concentrator filters and pre filters** protect the Oxygen Concentrator device and the patient from particulate matter and the risk of infection. They also work as a noise dampener to reduce the level of sound emitted by the machine. GVS Oxygen Concentrator Filters cover the major manufacturers including Respironics, De Vilbiss, Invacare, Airsep, Nidek and SeQual.

| Code | 3200/03 | 3200/08 | 4100/20 | 4100/30 |
|---|---|---|---|---|
| Version | HEPA | HEPA | HEPA | HEPA |
| Housing Material | ABS | ABS | ABS | ABS |
| Filter Media | Glass microfibre | Glass microfibre | Glass microfibre | Glass microfibre |
| Filtration Efficiency BFE | 99.9999% | 99.9999% | 99.9999% | 99.9999% |
| Filtration Efficiency VFE | 99.9999% | 99.9999% | 99.9999% | 99.9999% |
| Filtration Ability | 0.027 µm | 0.027 µm | 0.027 µm | 0.027 µm |
| Capacity | Volumes up to 100 L/min | Volumes up to 100 L/min | Volumes up to 100 L/min | Volumes up to 100 L/min |
| Resistance | Low level due to full media utilization | Low level due to full media utilization | Low level due to full media utilization | Low level due to full media utilization |
| Noise Level | Acoustic media reduces noise | Acoustic media reduces noise | Acoustic media reduces noise | Acoustic media reduces noise |

### 3200/03

| Code | Description | Box Qty |
|---|---|---|
| 3200/03LAUA | Oxygen Concentrator HEPA Filter (long life) Clinic Clean bag packed | 100 |

For use with Invacare devices (Platinum and perfect02 series)

### 3200/08

| Code | Description | Box Qty |
|---|---|---|
| 3200/08BAUC | Oxygen Concentrator HEPA Filter (long life) Clinic Clean bag packed | 125 |

For use with Respironics devices (Everflow series)

### 4100/20

| Code | Description | Box Qty |
|---|---|---|
| 4100/20BAUC | Oxygen Concentrator HEPA Filter Clinic Clean bag packed | 125 |

For use with Sequal devices (Integra series)

### 4100/30

| Code | Description | Box Qty |
|---|---|---|
| 4100/30BAUA | Oxygen Concentrator HEPA Filter Clinic Clean bag packed | 125 |


| Code | 4100/92 | 4100/725 | 4100/735 |
|---|---|---|---|
| Version | HEPA | HEPA | HEPA |
| Housing Material | ABS | ABS | ABS |
| Filter Media | Glass microfibre | Glass microfibre | Glass microfibre |
| Filtration Efficiency BFE | 99.9999% | 99.9999% | 99.9999% |
| Filtration Efficiency VFE | 99.9999% | 99.9999% | 99.9999% |
| Filtration Ability | 0.027 µm | 0.027 µm | 0.027 µm |
| Capacity | Volumes up to 100 L/min | Volumes up to 100 L/min | Volumes up to 100 L/min |
| Resistance | Low level due to full media utilization | Low level due to full media utilization | Low level due to full media utilization |
| Noise Level | Acoustic media reduces noise | Acoustic media reduces noise | Acoustic media reduces noise |
| Connections | Push fit 22 mm | Push fit 22 mm | Push fit 22 mm |

### 4100/92

| Code | Description | Box Qty |
|---|---|---|
| 4100/92BAUA | Oxygen Concentrator HEPA Filter clinic clean bag packed | 125 |

### 4100/725

| Code | Description | Box Qty |
|---|---|---|
| 4100/725BAUB | Oxygen Concentrator HEPA Filter clinic clean bag packed | 100 |

For use with Devilbiss devices (525 and 303 series)

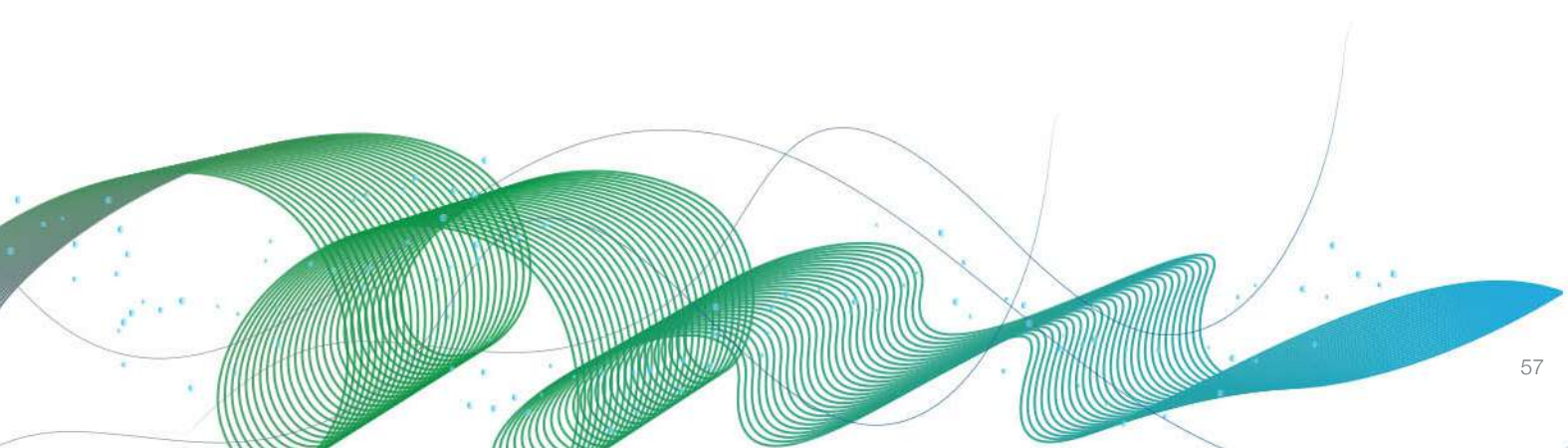
### 4100/735

| Code | Description | Box Qty |
|---|---|---|
| 4100/735BAUB | Oxygen Concentrator HEPA Filter clinic clean bag packed | 100 |

For use with Devilbiss devices (535, 505, 515 and SOLAIRIS series)

## Oxygen Concentrator Replacement Filters

| Product Code | Machine Using | Description | Size |
|---|---|---|---|
| **Pre-filters** | | | |
| 7270/127 | New Life, QuietLife 5, Oxiboy 6005 | Foam pollen filter | L 132 mm x W 99 mm, 18 mm depth |
| 7270/061 | New Life | Felt Filter | 50 mm Ø o/d 17 mm Ø i/d 25 mm depth |
| 7270/121 | Compact 5 | Foam pollen filter | L 142 mm x W 93 mm, 15 mm depth |
| 7270/145 | 505DS, 505DZ, 505CS, 515DS, 515KS, Solairis | Foam pollen filter | L 145 mm x W 92 mm, 15 mm depth |
| 7270/430 | Platinum5, Platinum10 | Foam pollen filter | L 227 mm x W 65 mm, 12 mm depth |
| 7270/109 | PerfectO2 | Foam pollen filter | L 170 mm x W 85 mm, 12 mm depth |
| 7270/434 | NUVO / MARK 4,5 & 5 Plus | Foam pollen filter | L 249 mm x W 104 mm, 8 mm depth |
| 7270/435 | Nuvo Lite | Foam pollen filter | L 302 mm x W 104 mm, 9 mm depth |
| 6888/01 | Millenium | Pre-Filter | L 204 mm x W 100 mm, 8 mm depth |
| **Vent filters & Air Intake filters** | | | |
| 2000/01 | All models | Air Vent Filter | 46.50mm diameter |
| 2000/06 | All models | Final Bacteriological Filter | H 59 mm x W 53.5 mm |
| 1420/01 | Quantum | Air Intake Filter | N/A |



*Products Independently tested, data available upon request*

FILTER TECHNOLOGY

GVS advanced technological skills combined with a multi-faceted team which works closely with clients, ensure the success of well projects.
The result is a range of more than 100 different fine, ultrafine & pollen filters to fit all leading CPAP/BIPAP machines.
GVS Manufacturing Capabilities: Die Cut, Cut & Weld, Cut & Seal, Overmould

## GVS CPAP / BPAP FILTERS

The CPAP machine takes in air, filters and pressurizes it to deliver therapy to help prevent the airway from collapsing during sleep. These devices can also attract dust and potential allergens. The filter is designed to clear these elements from the air before it reaches the patient's lungs.

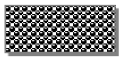
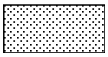
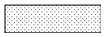
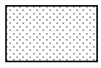
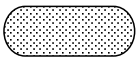
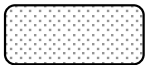
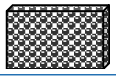
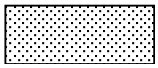
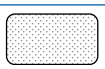
Fine
Bacterial/Viral Electrostatic Media

Ultrafine
Bacterial/Viral Electrostatic Media

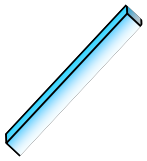
Pollen
Foam Media/Polyester felt Media

For more information please contact us using application form (www.gvs.com) stating the brand and model of CPAP / BIPAP machine

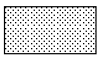
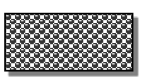
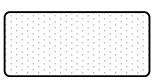
## CPAP-BIPAP • REPLACEMENT FILTERS

| Product | GVS product code | Machine Using | Description | Size | Manufacturer Ref. No |
|---|---|---|---|---|---|
| **Airox** | | | | | |
|  | 7270/371 | Legendair | Foam+Bacterial Filter | 70mm x 60mm 10mm depth | Legendair |
| **Breas** | | | | | |
|  | 7270/331 | VIVO series 30/40 | Foam Pollen Filter | Approx 85x15.5mm with Tunnel 10mm depth | 003563 |
|  | 7270/332 | VIVO series 30/40 | Electrostatic filtration media | Approx 85x15.5mm with Tunnel | 003564 |
|  | 7270/497 | VIVO series 50/60 | Foam Pollen Filter | 56 x 56mm x 5mm depth | VIVO series 50/60 |
|  | 7270/496 | VIVO series 50/60 | Electrostatic filtration media | 56 x 56mm | VIVO series 50/60 |
|  | 7270/407 | iSleep Series | Foam Pollen Filter | 66mm x 23mm 5mm depth | 004154 |
|  | 7270/399 | iSleep Series | Electrostatic filtration media | 66mm x 23mm | 004153 |
|  | 7270/158 | PV10 | Electrostatic filtration media | 67L x 23Wmm | 001975 |
|  | 7270/162 | PV100 | Electrostatic filtration media | 65L x 32Wmm | PV100 |
|  | 7270/159 | PV101/102 | Electrostatic filtration media | 105L x 22Wmm | PV101/102 |
|  | 7270/496 | VIVO 50/60 | Electrostatic filtration media | 56 x 56mm | VIVO 50/60 |
|  | 7270/497 | VIVO 50/60 | Foam Pollen Filter | 56 x 56mm x 5mm depth | VIVO 50/60 |
|  | 7270/054 | PV201/501 | Electrostatic filtration media | 82 x 82mm | PV201/501 |
|  | 7270/133 | PV401 | Electrostatic filtration media | 145Lx 40Wmm rounded ends | 269026 |
|  | 7270/106 | PV403 | Electrostatic filtration media | Breas J Shape | TCF-1-403 |
|  | 7270/163 | PV501 | Electrostatic filtration media | 82L x 82Wmm | PV501 |
| **DeVilbiss** | | | | | |
|  | 7270/508 | Sleep cube | Electrostatic filtration media | 45L x 32Wmm Radius corners | DV51D-603 |
|  | 7270/509 | Sleep cube | Foam Pollen Filter | 45L x 32Wmm Radius corners 6mm depth | DV51D-602 |
|  | 7270/030 | Horizon LT, Auto | Foam Pollen Filter | 100Lx 30Wmm 6mm depth | "8000D-602 |
|  | 7270/374 | Horizon LT, Auto | Electrostatic filtration media | 107 x 33mm | "8000D-603 " |
|  | 7270/453 | Sleep Cube | Electrostatic filtration media | 45 x 32mm Radius corners | HCFD02-0 |
| **Fisher&Paykel** | | | | | |
|  | 7270/375 | Sleepstyle 600 | Electrostatic filtration media | 70 x 24mm | 900HC240 |
|  | 7270/150 | Sleepstyle HC200, Sleepstyle 221 / 230 | Electrostatic filtration media | 129L x 18.3Wmm with cut outs | 900HC222 |
|  | 7270/499 | ICON | Synthetic felt | 54mm x 20mm 13.83mm depth | 9001CON503 |

## CPAP-BIPAP • REPLACEMENT FILTERS

| Product | GVS product code | Machine Using | Description | Size | Manufacturer Ref. No |
|---|---|---|---|---|---|
| **Healthdyne** | | | | | |
|  | 7270/18 | TRANQUILITY QUEST/ BETA/ DELTA | Foam Pollen Filter | 116 x 115 x 111mm three curved sides 6mm depth | 7301 |
|  | 7270/267 | TRANQUILITY QUEST/ BETA/ DELTA / CALYPSO | Electrostatic filtration media | 115 x 113 x 111mm three curved sides | 7302 |
| **Puritan Bennett - Covidien** | | | | | |
|  | 7270/371 | Legendair, PB 560, PB 520 | Foam+Bacterial Filter | 70mm x 60mm 10mm depth | Legendair, PB 560, PB 520 |
|  | 7270/450 | Sandman | Foam Pollen Filter | 42 x27mm 15mm depth | M-414840-06 |
|  | 7270/530 | Sandman | Electrostatic filtration media | 42 x 27mm Radius corners | M-414841-07 |
|  | 7270/188 | Goodknight 420 / 425 | Foam Pollen Filter | 48Lx 23Wmm 6mm depth | M-413950-04 |
|  | 7270/535 | Goodknight 420 / 425 | Electrostatic filtration media | 45L x 20Wmm Radius corners | M-413950-04 |
|  | 7270/045 | GOODNIGHT 418 | Foam Pollen Filter | 132L x 21Wmm 8mm depth | M-413560-01 |
|  | 7270/502 | GOODNIGHT 418 | Electrostatic filtration media | 130L x 20Wmm | M-413560-02 |
|  | 7270/118 | NPB REM+Ecco,-Soft,Auto, Duo | Foam Pollen Filter | 66L x 26Wmm 26mm depth | M-400413-01 |
|  | 7270/149 | Knightstar 335 | Foam Pollen Filter | 160L x 110Wmm 10mm depth | Knightstar 335 |
| **Resmed** | | | | | |
|  | 7270/12 | RESMED S5 / VPAP II / BILEVEL./ VPAP III BILEVEL / SULLIVAN AUTOSET T / AUTOSET SPIRIT /CS2 AUTOSET HUMIDAIR AND S8 AUTOSET H3I | Foam Pollen Filter | 167L x 17Wmm 10mm depth | 14907/8 |
|  | 7270/13 | RESMED S5 / VPAP II / BILEVEL./ VPAP III BILEVEL / SULLIVAN AUTOSET T / AUTOSET SPIRIT /CS2 AUTOSET HUMIDAIR AND S8 AUTOSET H3I | Synthetic felt | 167 L x 17Wmm | 14907/8 |
|  | 7270/44 | S6 Resmed/Sullivan | Bacterial Filter | 145L x 20Wmm top of curve | 21935/21936/21941/21944 |
|  | 7270/139 | Autocap/Autoset | Bacterial Filter | Trapezoidal shape 40mm depth/30mm tapering to 25mm R/ corners | |
|  | 7270/410 | S7 /Autopop / Autoset | Synthetic felt | Trapezoidal shape 40mm depth 30mm tapering to 25mm | S7 R309-758 |
|  | 7270/343 | S8 | Bacterial Filter - Hypoallergenic series | 34.50L x 36.50Wmm tapered to top | S8 |

*Products Independently tested, data available upon request*

| Product | GVS product code | Machine Using | Description | Size | Manufacturer Ref. No |
|---|---|---|---|---|---|
|  | 7270/340 | S8 | Synthetic felt | 34.50L x 36.50Wmm tapered to top | R330-733 |
|  | 7270/442 | AUTOSET ACS2 | Bacterial Filter - Hypoallergenic series | Overall 48mm x 27.9mm | AUTOSET ACS2 |
|  | 7270/471 | S9 | Synthetic felt | 53.6 x 35.6mm | 36850/ 36851/ 36852/ 36853 |
|  | 7270/503 | S9 | Bacterial Filter - Hypoallergenic series | 53.6 x 35.6mm | 36855/ 36856/ 36857/ 36858 |
| **Respironics** | | | | | |
|  | 7270/32 | BIPAP PRO/DUET LX / HARMONY S/T | Foam Pollen Filter | 120L x 60Wmm 10mm depth | 622220 |
|  | 7270/33 | BIPAP PRO/DUET LX / HARMONY S/T | Electrostatic filtration media | 122L x 82Wmm | 622219 |
|  | 7270/43 | SOLO/SOLO LX/ ARIA/ VIRTUOSO | Electrostatic filtration media | 86L x 71Wmm 19 x 10mm tab | 622017 |
|  | 7270/24 | SOLO/SOLO LX/ ARIA/ VIRTUOSO | Foam Pollen Filter | 85L x 60Wmm 10mm depth | 622018 |
|  | 7270/132 | PLV100/101 | Electrostatic filtration media | 80mmØ | 35220 |
|  | 7270/351 | M SERIES / PR System one / REMstar | Foam Pollen Filter | 44L x 23Wmm 10mm depth | "139608 *1029330 |
|  | 7270/355 | M SERIES / PR System one / REMstar | Electrostatic filtration media | 45L x 23Wmm plus Tab | 139609 1029331 |
|  | 7270/504 | PR System one / REMstar | Electrostatic filtration media | 43.9 x 21.8mm | 1063096 |
|  | 7270/02 | REMSTAR | Foam Pollen Filter | 156L x 130Wmm 12mm depth | 362521 |
|  | 7270/01 | REMSTAR | Electrostatic filtration media | 141L x 119Wmm Ellipse | 362522 |
|  | 7270/23 | ARIA/DUET/ VIRTUOSO/QUARTET | Electrostatic filtration media | 94L x 64Wmm one corner cut out | 532311 |
|  | 7270/50 | REMPRO / HARMONY 2 | Foam Pollen Filter | 94L x 40Wmm 9mm depth | 1005964 |
|  | 7270/135 | REMPRO / HARMONY 3 | Electrostatic filtration media | 91L x 40Wmm 16 x 10mm with tab | 1005965 |
|  | 7270/05 | BIPAP S AND ST AND STD / SLEEP EASY | Electrostatic filtration media | 200L x 125Wmm | 302064 |
|  | 7270/136 | BIPAP VISION | Electrostatic filtration media | 190Lmm x 77Wmm | 582101 |
| **Weinmann** | | | | | |
|  | 7270/19 | SOMNOTRON / SOMNOSMART | Foam Pollen Filter | 160L x 27Wmm 10mm depth | 23520 |
|  | 7270/105 | SOMNOTRON / SOMNOSMART | Electrostatic filtration media | 148L x 78Wmm | 23540 |
|  | 7270/102 | SOMNOCONFORT / SOMNOSMART 2 | Foam Pollen Filter | 68L x 68Wmm 8mm depth | SOMNOCONFORT / SOMNOSMART 2 |
|  | 7270/101 | SOMNOCONFORT / SOMNOSMART 2 | Electrostatic filtration media | 67.5L x 67.5Wmm | SOMNOCONFORT / SOMNOSMART 2 |
|  | 7270/445 | SOMNOCONFORT 2/ SOMNOBALANCE | Foam Pollen Filter | 70L x 30Wmm 8mm depth | SOMNOCONFORT 2/ SOMNOBALANCE |
|  | 7270/379 | SOMNOCONFORT 2/ SOMNOBALANCE | Electrostatic filtration media | 68.5L x 29.5Wmm | SOMNOCONFORT 2/ SOMNOBALANCE |

| | |
|---|---|
| 8866/100ABSA | 24 |
| 8866/100BAUA | 24 |
| 8866/100BRSA | 24 |
| 8866/100BSSA | 24 |
| 9064/711ABSA | 17 |
| 9064/711BAUA | 17 |
| 9064/711BRSA | 17 |
| 9064/711BSSA | 17 |
| 9064/751ABSA | 21 |
| 9064/751BRSA | 21 |
| 9064/751BSSA | 21 |
| 9065/710ABSA | 17 |
| 9065/710BAUA | 17 |
| 9065/710BRSA | 17 |
| 9065/710BSSA | 17 |
| 9065/750ABSA | 21 |
| 9065/750BRSA | 21 |
| 9065/750BSSA | 21 |
| 9066/701ABSA | 14 |
| 9066/701BAUA | 14 |
| 9066/701BRSA | 14 |
| 9066/701BSSA | 14 |
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| 9066/751BAUA | 22 |
| 9066/751BRSA | 22 |
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| 9066/771ABSA | 22 |
| 9066/771BAUA | 22 |
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| 9085/771BSSA | 23 |
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| 9500/01BRSA | 25 |
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| 9500/710BSSA | 25 |
| 9500/750ABSA | 25 |
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| 9500/750BSSA | 25 |
| A508BAUA | 37 |
| A508BPUA | 37 |
| A539ABUA | 37 |
| A539BAUB | 37 |
| A571ABUA | 37 |
| A571BAUA | 37 |
| FR003AKRET200A00 | 21 |
| FR003AKRET200D00 | 21 |
| FR003SKRET200A00 | 21 |
| FR003SKRET200D00 | 21 |
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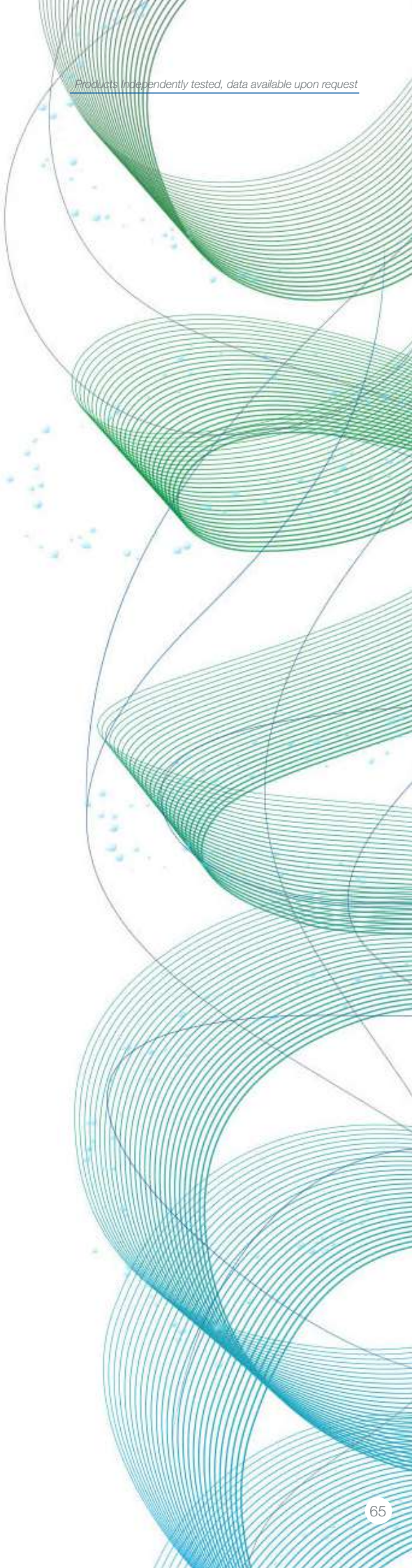
| FR004AKRET200D00 | 13 |
| FR004SKRET200A00 | 13 |
| FR004SKRET200D00 | 13 |

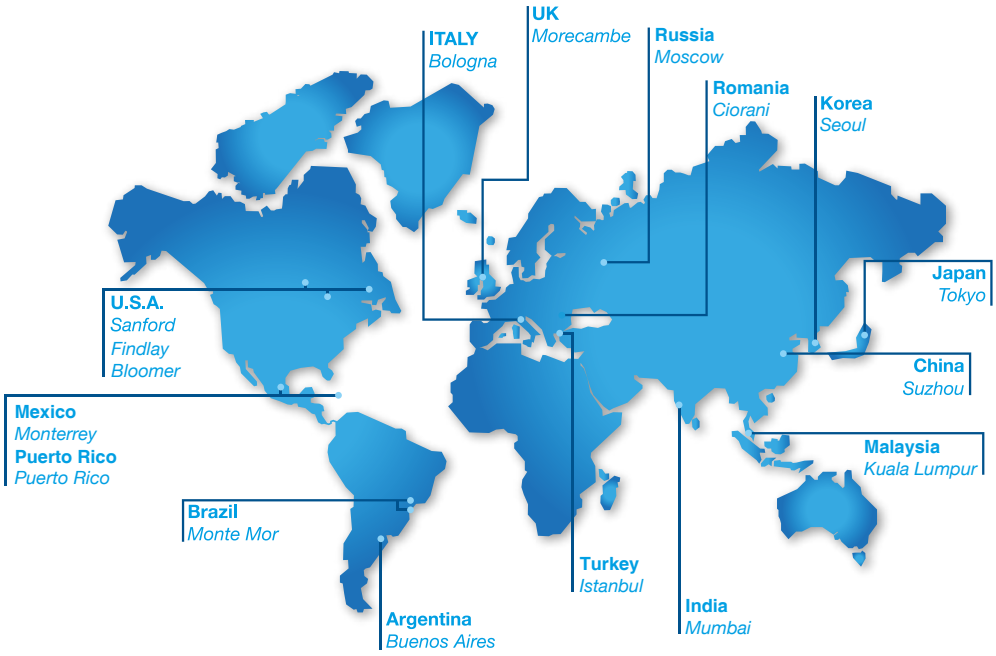


GVS

FILTER TECHNOLOGY


Because we care.

FILTER TECHNOLOGY




## WORLDWIDE

### EUROPE

Italy Office Headquarters
GVS S.p.A.
Via Roma 50
40069 Zola Predosa (BO) - Italy
Tel. +39 051 6176311
gvs@gvs.com

Russia
GVS Russia LLC.
Profsoyuznaya Street, 25-A, office 102
117418, Moscow
Russian Federation (Russia)
Tel. +7 495 0045077
gvsrussia@gvs.com

United Kingdom
GVS Filter Technology UK
Vickers Industrial Estate
Mellishaw Lane, Morecambe
Lancashire LA3 3EN
Tel. +44 (0) 1524 847600
gvsuk@gvs.com

Romania
GVS Microfiltrazione srl
Sat Ciorani de Sus 1E - Comuna Ciorani
Prahova România
Tel. (+40) 244 463044
gvsro@gvs.com

Turkey
GVS Türkiye
Nidakule Merdivenköy Mahallesi
Bora Sokak No:1 Kat:7 - 34732 Istanbul
Tel. +90 216 504 47 67
gvsturkey@gvs.com

### ASIA

China
GVS Technology (Suzhou) Co., Ltd.
Fengqiao Civil-Run Sci-Tech Park,
602 Changjiang Road,S.N.D.
Suzhou, China 215129
Tel. +86 512 6661 9880
gvschina@gvs.com

GVS YIBO Medical Devices Co. Ltd.
17, Zhongshan East - Yuyao city,
315403 Zhejiang Province, China
Tel. +86 574 6257 5697

Japan
GVS Japan K.K.
KKD Building 4F, 7-10-12 Nishishinjuku
Shinjuku-ku, Tokyo 160-0023 Japan
Tel. +81 3 5937 1447
gvsjapan@gvs.com

Korea
GVS Korea Ltd
#315 Bricks Tower
368 Gyungchun-ro(Gaun-dong),
Namyangju-si, Gyunggi-do,
Tel: +82 31 563 9873
gvskorea@gvs.com

India
GVS Filter India Pvt Ltd
Unit No 35 & 36 on First Floor
Ratna Jyot Industrial Premises Irla Lane,
Irla Vile Parle, Mumbai 400056, India
gvsindia@gvs.com

Malaysia
GVS Filtration Sdn.Bhd
Lot No 10F-2B, 10th Floor, Tower 5 @ PFCC
Jalan Puteri 1/2, Bandar Puteri
47100 Puchong, Selangor, Malaysia
Tel: +60 3 7800 0062
gvsmalaysia@gvs.com

### AMERICA

U.S.A.
GVS North America
63 Community Drive
Sanford, ME 04073 - USA
Tel. +1 866 7361250
gvsusa@gvs.com

GVS Filtration Inc.
2150 Industrial Drive
Findlay, OH. 45840 - USA
Tel. +1.419.423.9040
gvsfiltration@gvs.com

2200 W 20th Avenue
Bloomer, WI 54724 - USA
Tel. +1.715.568.5944
gvsfiltration@gvs.com

Puerto Rico
GVS Puerto Rico, LLC
98 Carr 194 - Fajardo,
Puerto Rico, 00738-2988, USA
Tel. +1.787.355.4100
gvspuertorico@gvs.com

México
GVS Filter Technology de Mexico
Universal No. 550, Vynmsa Aeropuerto Apodaca
Industrial Park, Ciudad Apodaca, Nuevo León,
C.P. 66626 - México
Tel. +52 81 2282 9003
gvsmex@gvs.com

Argentina
GVS Argentina S.A.
Francisco Acuña de Figueroa 719 Piso:11 Of: 57
1416 Buenos Aires - Argentina
Tel. +54 11 48614750
gvsarg@gvs.com

Brazil
GVS do Brasil Ltda.
Rodovia Conego Cyriaco Scaranello Pires 251
Jardim Chapadão, CEP 13193-580
Monte Mor (SP) - Brasil
Tel. +55 19 38797200
gvs@gvs.com.br

PRODUCT COLLECTION - Healthcare Air Filtration

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