

Containment Airflow Booths



Howorth - Pure Protection

For more than 150 years, the Howorth name has represented technical creativity and expertise in air engineering and its application to climatise and control the working environment.



Howorth's expertise in engineering clean air is fundamental to our success in providing world class containment and infection control solutions. Serving the global pharmaceutical, medical and wider industrial markets.

The company's strong reputation has been earned by providing well designed, high quality goods, together with a superior level of customer service, both pre and post order.

Research and Development

As a company that prides itself in being at the forefront of technology, the continuous development of our products and services is key to our ongoing success. This is reflected in our recent investment in a new state-of-the-art Research and Development facility at our UK head office located near Manchester, England.

US Operations

In 2008 Howorth continued its ongoing expansion into the Americas with the opening of a brand new manufacturing facility in Louisville, Kentucky.

The facility enables Howorth to better serve the North American market, both in terms of manufacturing new equipment and in providing a base from which to deliver an enhanced level of aftermarket support.

Downflow Containment Booths

Howorth's Downflow Containment Booths are engineered to provide high levels of personnel protection, with the flexibility to enable a multitude of process operations to be carried out.



Industry Leading Levels of Protection

The need to protect operators from toxic, potent, or sensitizing compounds is becoming more and more frequent, as is the need to move away from cumbersome Personal Protective Equipment (PPE).

Howorth's Downflow Containment Booths are engineered to provide high levels of personnel protection and flexibility to enable a multitude of process operations to be carried out without the need for excessively constraining PPE.

Developed for FDA and EU GMP Facilities

Developed specifically for FDA and EU GMP facilities, Howorth's booths are designed and manufactured to exacting standards.

Our systems incorporate features such as crevice-free flush fitting panels, automatic self-maintaining flow control, dedicated electrical panels (optional HMI), alarms & interlocks and many more.

From 'Plug & Play' to Fully Integrated

We can offer a complete range of booths from stand-alone, mobile or fixed, 'Plug & Play' systems - ready to go once they are electrically connected - to units that completely integrate into your new or existing facility.

No More Compromise - Parametric Designs

Having to make the age-old compromise between the flexibility of custom design and the price & time savings of a standard booth is no longer necessary with Howorth's new parametric Computer Aided Designed Booths.



Features and Options

Howorth's engineers will work with you to develop an airflow containment solution that meets your exacting requirements.



Drum Manipulator



Weigh Scales & Ventilated Shelf



Vacuum Drum Lifter



Integrated Utilities

Enhanced Protection & Fully Configurable

Howorth booths not only give enhanced levels of operator protection, but are fully configurable to meet the specific needs of our clients.

- Flexible dimensions and safe working zones
- Available in a variety of construction materials, including 304/316L Stainless Steel and epoxy coated carbon steel
- Integrated cooling coils and other climatic systems
- A wide range of ancillary equipment such as ventilated workbenches, integrated manipulators and drum handling systems
- Designs suitable for use in explosive environments
- Glass walls and viewing windows
- Custom filtration systems to suit each application, with options including Terminal HEPA's and Safe Change (Bag in/Bag out) solutions
- Ceiling or side wall mounted lighting
- Floor mounted plinths to ease installation and facilitate cGMP flooring



Flexibility

Howorth's engineers will work with you to develop an airflow containment solution that meets your exacting requirements. Our inherently flexible systems together with our experience of equipment integration will allow you to meet your safety needs without having to compromise on process efficiency.

Containment by Airflow

Containment by airflow is a well proven concept taken to new levels by Howorth's air engineers.

Downflow Containment

Containment by airflow is a well proven concept taken to new levels by Howorth's air engineers. Our downflow booths utilize a unidirectional flow of air which is passed through ceiling mounted distribution screens ensuring a controlled, uniform flow of air.

This airflow is first directed downwards, suppressing any dust cloud formation and then towards low level exhaust grilles, enabling particulate and vapors to be quickly carried away from the breathing zone of operators.

As the air approaches the grilles its velocity is increased to ensure any contaminants remain entrained and do not settle onto the floor or other surfaces.

Multistage Filtration

Once through the exhaust grilles, the air is passed through a number of filtration stages. This typically consists of a pre-filter stage (G4 efficiency), a fine filter stage (F7/F8) and a final HEPA stage (H13/H14). Having passed through all these filtration sections the contaminant-free, ultra-clean air is either exhausted or recirculated.



Downflow air pattern

Howorth's booth design is inherently flexible, so that a wide number of filter configurations can easily be catered for, including ULPA and 'Terminal' HEPA's.

Configurable for either Powder or Vapor

Depending upon the application, two main configurations are used.

- Once-through booths are recommended where solvent or fume vapors are present.
- Recirculatory booths are typically used for powder operations.

Local Environment Protection

When configured in recirculatory mode, a small amount (c.10%) of the return air is exhausted, this keeps the booth at a slightly lower pressure than the surrounding area. This in turn draws in air to the booth ensuring that airborne contaminants are contained within the booth, providing protection to the local environment. Further local area protection can also be achieved through a variety of manual and automatic door/airlock options.

Product Protection

If required the Howorth booth can also be configured to provide a Class A (ISO 5) Cleanroom environment, for use when products must be aseptically processed.

High Containment Screens

Howorth's High Containment Screens (HCS) are a simple but effective way of boosting the containment capabilities of any downflow booth.



High Containment Screens

Howorth's High Containment Screens (HCS) are a simple but effective way of boosting the containment capabilities of any downflow booth. With our new range of screens, Howorth is now able to offer previously unattainable levels of operator protection.

Screen Options

- 2D screen offering side to side movement
- 3D screen offering side to side, front to back and controlled rotation
- 4D screen offering side to side, front to back, controlled rotation and up and down movement
- 4DM screen using an articulated arm, ideal for booths with low ceiling heights and where gantry type fittings are inhibited

Principles of Operation

Downflow booths are designed to protect the operator from dust rising into the breathing zone. The High Containment Screen is fitted into the booth and forms a physical barrier between the operator and the dust source, keeping all dust laden air close to the exhaust

grilles of the booth.

Ergonomic Benefits

Howorth's High Containment Screens have been designed to enhance the comfort of operators. The screen defines the range of movement and helps to prevent bad practices which may impact on an operators posture.

4D High Containment Screen

Developed in collaboration with existing booth operators, the 4D HCS offers unparalleled levels of operator flexibility, making it the ideal solution for a wide range of processes.



Independent testing with the 4D HCS has confirmed that OELs as low as $0.5 \mu\text{g}/\text{m}^3$ can be achieved.

Specialized Containment Booths

Howorth's kilolab containment enclosures can provide a high level of operator protection from dust, vapor and liquids, while also allowing ease of access for maintenance.



Glassware & Kilolab Enclosures

Whether for use in research, as a pilot-plant or for full production, kilolabs are frequently utilized within pharmaceutical facilities. Howorth's kilolab containment enclosures can provide a high level of operator protection from dust, vapor and liquids, while also allowing ease of access for maintenance.



Capable of providing OELs below $10 \mu\text{g}/\text{m}^3$, our cGMP compliant enclosures provide an excellent safeguard against hazardous materials. Horizontal, sliding sash, glass panels combined with full length double opening doors ensure maximum operator visibility and accessibility.

Laminar Flow Booths

Howorth has considerable experience of supplying specialized containment booths for a variety of processes and equipment. These include pack-off systems and equipment such as mills and sieves.



Solvent / Liquid Drum Booths

Drum booths are designed to provide low ppm containment during solvent or liquids transfer and handling processes eg drum to drum transfer or drum to process reaction vessel. Available in Stainless Steel, coated steel or Polypropylene for added corrosion resistance.



Aftermarket Support & Servicing

Howorth can offer you an ongoing support service over the full lifetime of our products and beyond to your future needs.

Installation, Commissioning and SAT

We understand that our products are often a small part of a much bigger picture. That's why we focus on making the installation and commissioning procedure as smooth as possible.

Our experience of equipment integration, together with rigorous engineering and quality procedures, ensures that the only last minute surprise is the ease with which our solutions are fully operational.

Extensive documentation, ergonomic models and Factory Acceptance Tests (FATs) all contribute to making Site Acceptance Testing (SAT) a trouble-free formality.

Maintenance and Validation

The ongoing maintenance and validation of your containment products is essential to ensure the safety of your staff and efficiency of your processes.

As an OEM supplier we can ensure that your equipment remains in peak condition through the supply of quality approved parts.

And our experienced Service Engineers can maintain, validate and, if required, upgrade your equipment. Ensuring that you meet the latest industry regulations and that your people, products and business receive the maximum protection.

Howorth Air Technology Ltd.

Lorne Street, Farnworth
Bolton, BL4 7LZ, UK

T: +44 (0) 1204 571131
F: +44 (0) 1204 862378

Howorth Air Technology Inc.

3881 Business Park Drive
Louisville, KY 40213, USA

T: 502 968 2065
F: 502 968 2066