

# Barrier Isolator Systems For Potent Compound Containment



# 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 by investing in highly skilled representatives around the US and South Americas.

The close relationship with Howorth and their representatives enables Howorth to better serve the American market.



# Barrier Isolator Systems

For a fully contained environment during active product handling, you need a solution that provides uncompromised total barrier isolation.



The safe handling of bulk chemicals and potent pharmaceutical compounds demands a controlled environment which provides uncompromising total barrier isolation.

## Nanogram Levels of Containment

Howorth can design and manufacture negative pressure isolators which combine validated containment levels of less than  $1 \mu\text{g}/\text{m}^3$  with ergonomic and maintenance efficiency.

## Full Process Integration

To ensure total system integration, Howorth works in close co-operation with you, our customer. Particular attention is paid to the interface between the operator and your own process to ensure that all production and containment levels are fully achieved.



## 3D Modeling & Ergonomic Mock-ups

The use of advanced 3D CAD models together with the production of a full scale mock-up allows the ergonomic aspects to be addressed in addition to the optimum placement of ancillary and process equipment. Following client review, any design modifications can take place prior to progression into full manufacture.





# Containment Isolators

Howorth has developed a wide range of innovative containment solutions for protecting personnel.

Howorth has developed a wide range of innovative containment solutions for protecting personnel and the environment from potent pharmaceutical compounds. These solutions are carefully designed to ensure that they work in harmony with the core processes they are providing a barrier against.



Pack-off Isolator



Jet Mill Isolator



Dispensing / Sampling Isolator

## Dispensing and Sub-division

For example, Howorth has developed an extensive number of isolator systems for use in the dispensing and sub-division of APIs and other compounds. Capable of nanogram levels of protection these systems incorporate features such as...

- Single or multiple chambers
- Fully interlocked air-locks, doors & visors
- HEPA filtration on inlet & outlet vents
- A number of transfer system options
- Isolator raise/lower systems for operator comfort
- Fully integrated & flush-mounted weigh scales
- Automated or manual drum tipplers

## Reactor Product Charging

The charging or filling of reactors and other vessels with potent products is a frequently needed process operation. Whether protecting operators against powders or liquids, Howorth has a barrier isolator for the job.

By working closely with clients to develop rigorous Standard Operating Procedures (SOPs), we have been able to verifiably demonstrate operator exposure levels of less than  $0.01\mu\text{g}/\text{m}^3$ .



Tablet Press Isolator

### Pack-off / Off-loading

Where there is a need to discharge highly potent compounds into transportable containers from equipment such as dryers, secondary protection in the form of negative pressure isolators are frequently utilized to augment any primary containment devices used.

Not only can Howorth supply a variety of primary pack-off solutions, in the form of pack-off heads and single or continuous liner systems, but these can be fully integrated into a number of styles of pack-off isolator. Features such as multiple chambers, integral weigh scales, continuous roller conveyers, Wash In Place (WIP) systems and many others can all be easily accommodated.



**Roll Compactor Isolator**

### Integrating Complex 3rd Party Equipment

Howorth has earned a strong reputation within the industry for innovative integration of process equipment within barrier isolation systems. Working with both end users and process equipment OEMs, Howorth has successfully integrated a wide range of equipment including...

- Micronizers and mills
- Granulators & compactors
- Lyophilizers (freeze dryer)
- Filter dryers & FBDs
- Tablet presses and coaters
- Pilot plant & laboratory equipment

### Retrofitting of Existing Equipment

As well as providing fully integrated isolator designs for new processes, Howorth has also developed considerable expertise in the retrofitting of containment solutions with existing processing equipment.

In this way, we have been able to extend the life of valuable, otherwise obsolete equipment, to reduce the overall project cost and timescale.



**Tray Dryer Isolator**



**Granulator Isolator**

# Features and Options

Our isolators are manufactured to the highest standards, seams are fully welded, corners are appropriately radiused and surfaces are polished in accordance with cGMP guidelines.



## cGMP Design & Construction

Howorth understands the increasingly onerous international health and safety standards that our clients are required to work to. Our containment solutions and associated documentation meet or exceed the relevant cGMP, FDA, ATEX and other global standards.

Our isolators are manufactured to the highest standards; seams are fully welded, corners are appropriately radiused and surfaces are polished in accordance with cGMP guidelines.

## Transfer Systems

Howorth is pleased to be able to offer an extensive range of transfer systems. Whether our own proprietary designs or 3rd party solutions, we are sure to have a transfer solution to meet with your process, containment and ergonomic needs.

- Interlocked pass through boxes c/w inflatable seals
- Fully integrated Split Butterfly Valves (SBVs)
- Rapid Transfer Ports (RTPs) in various materials
- Automated or manual drum tippers & lifters
- Bag-in / bag-out systems
- Continuous Liner Systems

## Gloves, Gauntlets & Half-suits

Howorth offers a large selection of glove, gauntlet and half-suit designs, available in materials to suit a variety of applications.

Our glove ports utilize a double glove arrangement together with a smooth, internal, fixing free design for maximum safety and cleanability. Furthermore, the positioning of ports, doors and process equipment is fully co-ordinated to ensure maximum ergonomic comfort.

## Solutions to Meet Your Needs

Howorth has earned a strong reputation for working in close partnership with our clients to deliver effective solutions. We have a substantial product portfolio to call upon and the engineering resource & experience to quickly develop bespoke solutions as the need arises.

Isolator shells can be constructed in Stainless Steel (316L, 304L & other grades), Hastelloy & other exotic alloys, solvent resistant GRP and with epoxy coatings for specialized duties.

The incorporation of advanced Human-Machine-Interfaces (HMIs) / PLC systems (CFR 21 part 11 compliant) is easily achieved, as is the addition of WIP/ CIP cleaning systems, including spray guns, lances and spray-balls.

# Aftermarket Support & Servicing

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



## Installation, Commissioning and SAT

At Howorth, 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.

## Servicing 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.

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





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