



Isopod
rapid cleanrooms



www.guardtech.com

Guardtech
group





ENQUIRY CHECKLIST

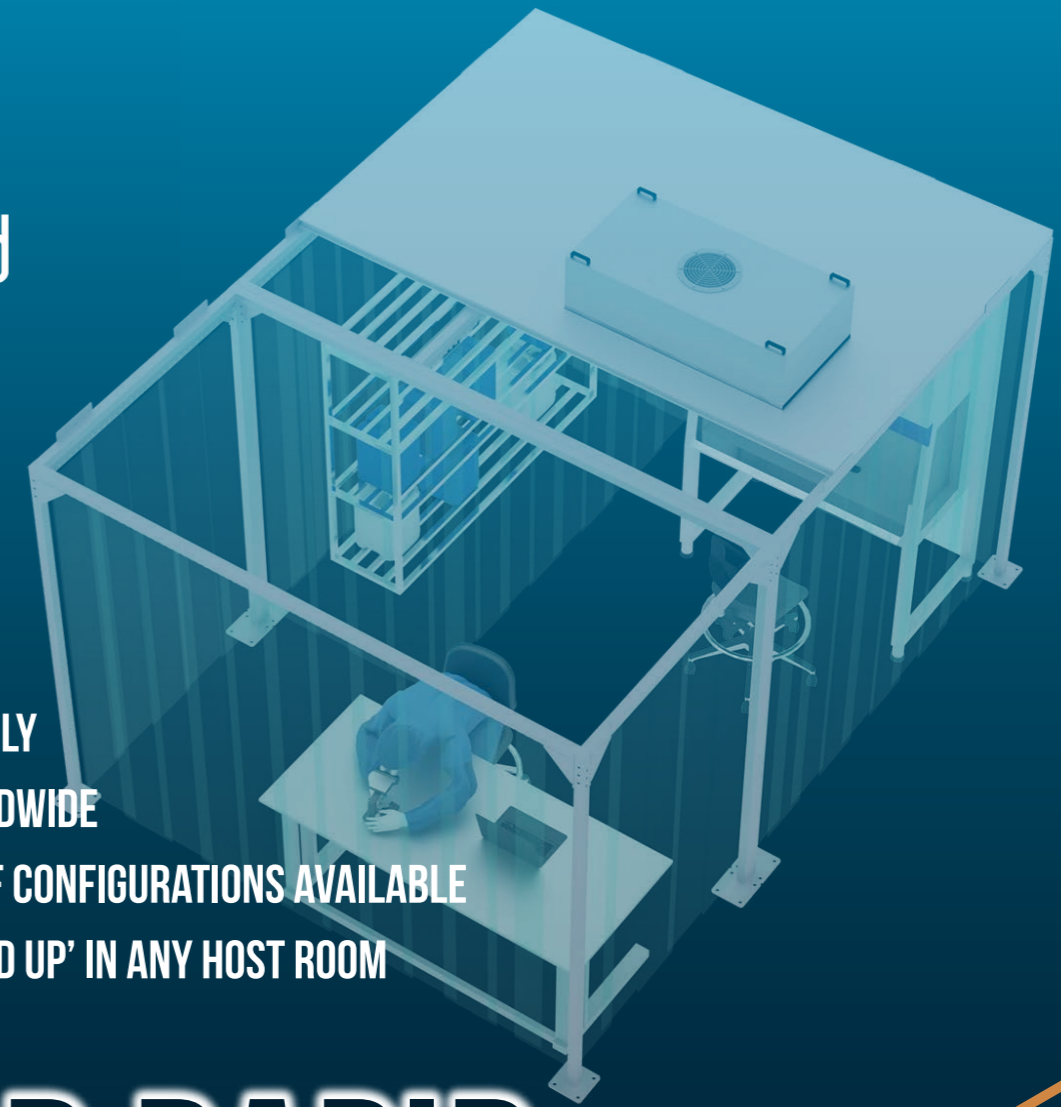


Name: _____
 Location: _____
 Company: _____
 Telephone: _____
 Position: _____
 Email address: _____

Site address			
Project target completion date			
Quotation required by (date)			
Cleanroom length (mm)			
Cleanroom width (mm)			
Cleanroom height (mm)			
Personnel Airlock (PAL) (mm)			
Materials Airlock (MAL) (mm)			
Framework	Grade 304 stainless steel:	Aluminium:	GRP:
Walls	Hardwall - composite modular panels:	Softwall - PVC Curtain:	Softwall - ESD Curtain:
Windows required	Size - 900mm x 900mm:	Size - 900mm x 1500mm:	Quantity:
Doors required	Strip curtain:	Steel doors:	Quantity:
Vinyl floor	Yes:	No:	
Classification	ISO8:	ISO7:	ISO6: ISO5:
Temperature control	N/A:	Yes - temperature:	°C +/- °C
Lighting (lux level)	500 - standard:	1000 - inspection:	
13-amp double sockets	N/A:	Yes - quantity:	
Castors	Castors:	Levelling castors:	Levelling legs:
Assembly	Self-assembly:	Guardtech installation:	
Furniture (quantity)	Stepover Bench:	Trespa Work Bench:	Ergonomic Chairs: Storage Cabinet:
Equipment (quantity)	Sink:	Garment Rail: Coat Hooks:	Bin:
Host room information	Laminar Flow Unit:	Biological Safety Cabinet:	Transfer Hatch: Trolley Hatch:
Other important information			



Isopod rapid cleanrooms



- QUICK-ASSEMBLY
- SHIPPED WORLDWIDE
- WIDE RANGE OF CONFIGURATIONS AVAILABLE
- CAN BE 'POPPED UP' IN ANY HOST ROOM

ISOPOD RAPID CLEANROOMS

Press play for video content

ISOPOD is a revolutionary concept in modular cleanroom design & build. Isopods are high-performance controlled environments which can be rapidly self-assembled and are fully customisable to best utilise the host room they are installed within.

Combining high-quality construction materials with state-of-the-art cleanroom technology, Isopods are the perfect solution to upgrading Production environments, R&D applications, Education or Healthcare facilities in a sustainable, practical and cost-effective way.

Isopods can be reconfigured, relocated, extended and upgraded – growing alongside your business, evolving with your needs. Shipped worldwide ready for quick and simple self-assembly, supported by full installation instructions and demo

movies.

Alternatively these can be delivered & installed quickly by Guardtech's experienced Isopod engineers.

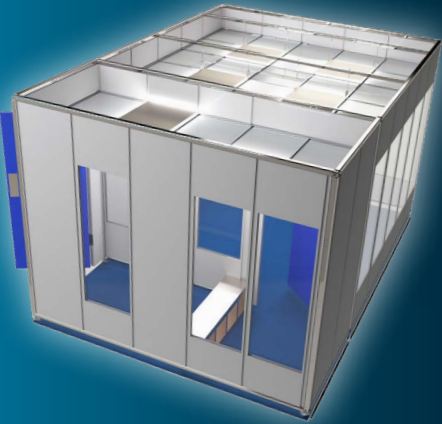
- Ships worldwide for self-assembly
- Can be reconfigured, relocated and extended
- Available as hardwall, softwall or hybrid cleanroom
- Changing room/materials interlock modules
- Can be static or mobile on castors
- Can be upgraded or modified as your business grows
- Energy efficient – only control the area that requires it
- Can be branded in corporate colours, logo, graphics
- Removable panels for equipment transfer
- Glazing can be added to hardwall



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BASE MODEL TYPES



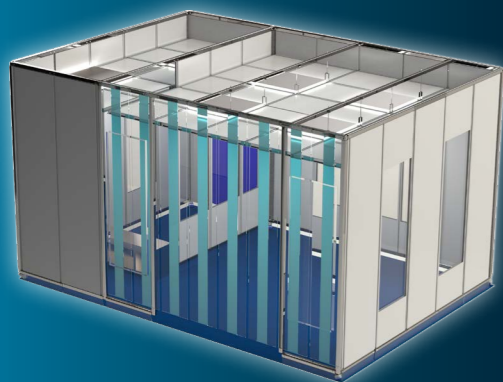

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HARDWALL




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SOFTWALL




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HYBRID

COVING

Wall-to-wall and wall-to-ceiling coving available. Fully flush panel system provides flush floor connection as per photo.

DOORS

Choice of doors available: rapid rise doors – PVC curtain with stainless frame and GRP or powder-coated steel personnel doors with stainless steel push plate, kick plate and handle with 400mm x 400mm vision panel. All Guardtech doors can be electromagnetically interlocked. Also available as a fully flush system with recessed base for flooring to cove into.

GLAZING

Isopod glazing panels are available in two standard sizes for the Hardwall and Hybrid models – 900x900mm or 1500x900mm. Custom arrangements may be possible – please speak to a member of the Isopod team about your requirements so we can help find the best solution.

WALLS

Powder-coated CR4 mild steel panels with polyisocyanurate (PIR) insulated core and interlocking joints. The panels feature a 50mm thickness to form walls and ceiling. Highly durable, cleanable and chemically resistant, the walls are silicon sealed.

FRAME

All three versions of the Isopod come with a more lightweight aluminium frame as standard, but there is the option to upgrade to a grade 304 stainless steel frame. The framework is held together by specially made connectors, designed solely for these products and tested rigorously by experience Guardtech's in-house engineers.

FLOORING

Homogenous vinyl floor reinforced with cross-linked polyurethane, UV-cured, hot-welded joints. Coved 100mm up the wall over underlay former and capped. Copper-grounded anti-static vinyl also available.

STRIP CURTAIN

Guardtech's Softwall and Hybrid Isopods feature a strip curtain, designed to overlap and create a flexible wall for cleanroom applications. This lightweight PVC curtain is suspended by a stainless steel plate and attached to a stainless steel hanging rail, Available in the following thicknesses and widths: 2mm thickness x 200mm width or 3mm thickness x 300mm width.

Press play for video content



CEILING

Panelled ceiling with thermal insulation core provides a flush surface. Lighting and filtration modules are recessed into apertures or surface mounted for laboratory applications.

MECHANICAL & ELECTRICAL



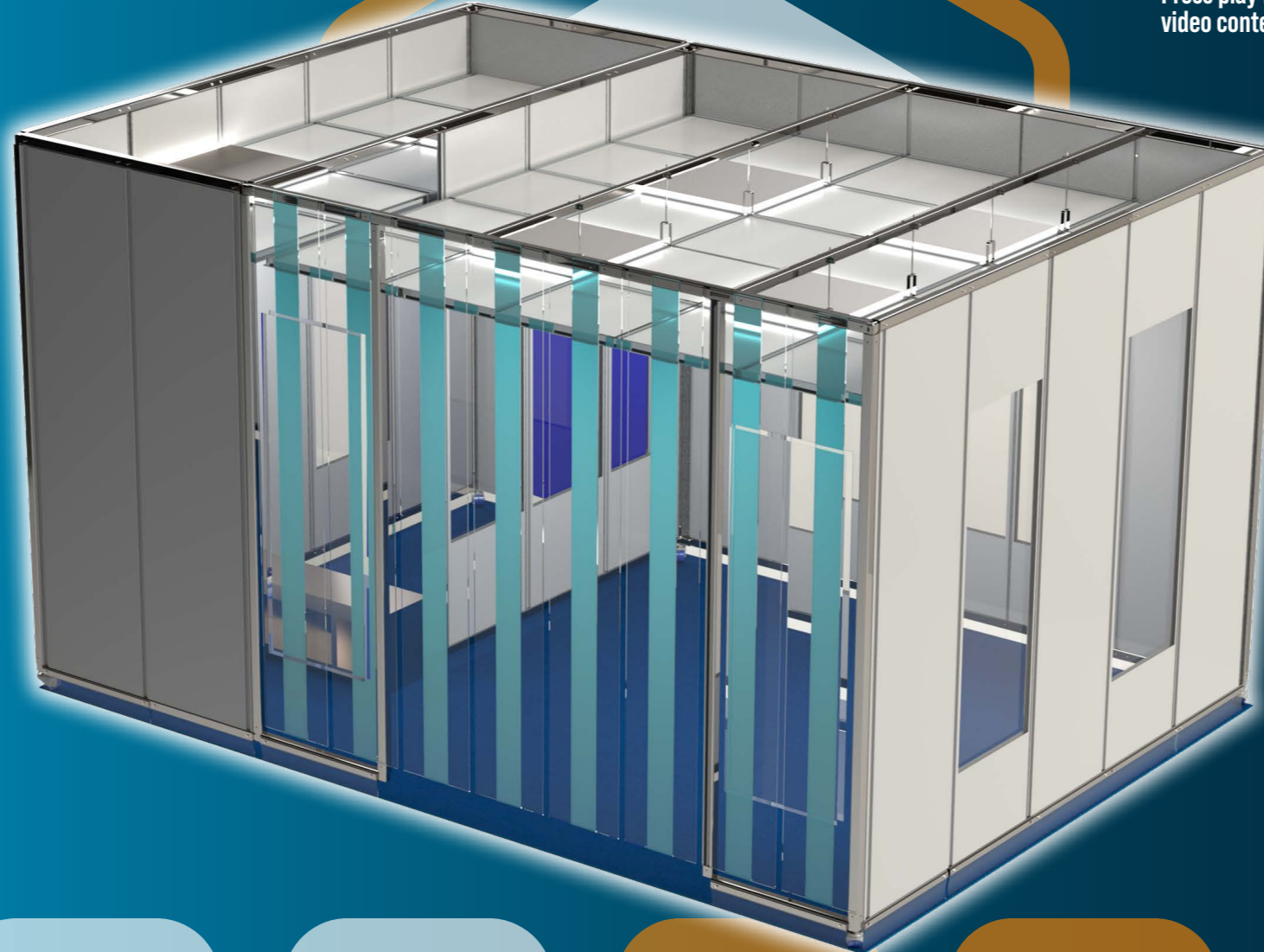
CONTROL PANEL

15.7" touchscreen HMI+PLC provides a full control and monitoring system for your Isopod Rapid Cleanroom. Environmental Monitoring System feeds back to give real time data on temperature, humidity and pressure. Fan speeds and HVAC systems can be controlled as well as other compatible equipment.



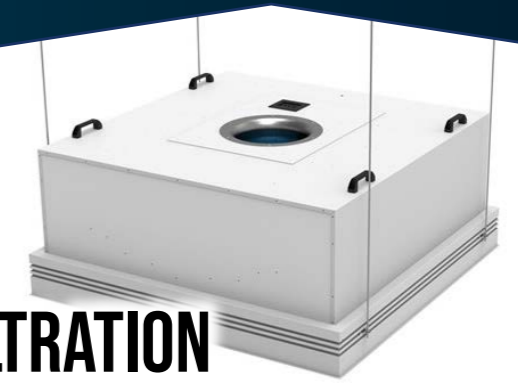
HVAC

Temperature control via VRF (variable refrigerant flow) split system. Humidity control also provided via upflow units or separate desiccant wheels. External condensers can be contained in attached plant rooms or mounted on Isopod exterior.



Press play for video content

FILTRATION



For ISO 14644 compliant environments, Fan Filter Units (FFU) with H14 HEPA filters and G4 pre-filters provide 1,000m³/hour of filtered air. For ceiling heights of 2.1m slimline FFUs are installed in the ceiling to provide vertical laminar flow. Depending on the specifications of your chosen model, Isopods can achieve a classification up to ISO5.



ENVIRONMENTAL MONITORING

Guardtech provide a fully integrated Environmental Monitoring System that can also be 21CFR Part 11 compliant. With a range of high-performance multifunction sensors, temperature, humidity and pressure can all be monitored in real time and recorded for an audit trail. Fully flush or semi flush LED display gives in-room feedback



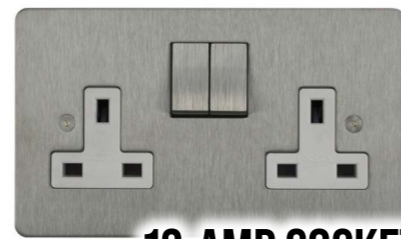
GAS

Compressed air and nitrogen via compressors and generators housed directly within the cleanroom or lab – or in an enclosed plantroom. Pipework, point of use fittings, regulators and hook-up connections can also be put in place.



EXTRACTION

Chemicals, airborne particulate and heat can all be extracted to a localised filtration unit for scrubbing. Safe change modules can also be placed on the exhaust system to mitigate the risk of cross-contamination.



13-AMP SOCKET

All Isopod Rapid Cleanrooms can include stainless steel or white plastic 13-amp sockets mounted flush. CAT6 network sockets and 16amp or 32amp three-phase outlets are also available in the range.



LIGHTING

Powder-coated steel light units, flush mounted into the ceiling panels with drop-down hinged diffuser. Also available as surface-mounted aluminium LED batten luminaires for laboratories. Activation by switch or PIR (passive infrared) sensor. Lights can be UV filtered for photo sensitive processes.



CONTAINMENT

For cleanrooms Guardtech install sockets and services flush to the panel system with containment embedded within the panel core. For laboratories, three-compartment PVC trunking is used for flexibility of socket positioning and cost effectiveness.



ACCESSORIES



Guardtech can offer a number of controlled environment accessories with their range of IsoPod Rapid Cleanrooms, including Dyson Airblade hand dryers, various dispensers and stainless steel coat hooks.

Press play to build your own IsoPod

BIO SAFETY CABINET

Guardtech are delighted to offer the full range of Esco biosafety cabinets with all of our IsoPod models. This includes delivery, fitting and commissioning – if required. Popular installations feature the Airstream Class II Biosafety Cabinet – AC2-4E8 4ft model, but we can adapt the layout to meet your operational requirements.



LAMINAR FLOW UNIT

Guardtech have partnered with Esco to bring you an extensive, exciting range of equipment solutions for your IsoPod, with an array of models to meet your laminar flow clean bench needs. Esco's new generation Airstream® laminar flow units offer a wide range of options in terms of material specs, width and height.



TRANSFER HATCHES

These hatches provide a controlled air-tight zone for the transfer of products on trolleys, eliminating unnecessary traffic from the cleanroom, reducing particle ingress and decreasing the risk of cross-contamination.



CHAIRS

Our MVMT Pro chairs are designed for critical environments, including static-sensitive and particle/microbe-controlled areas. The MVMT Pro offers weight-activated control, meaning an individual user's weight sets the tension, which alleviates resetting controls in multi-user shift workplaces.



SHELVING UNIT

Stainless steel shelving units available in a range of sizes and shelf configurations. These units are resistant to harsher cleaning products and are specially designed to be easy to clean, durable and functional.



SINK

Self-contained stainless steel sinks with container-fed hot & cold water supply and separate drainage vessel. Motion sensor-activated tap, soap & towel dispenser attached.



WORK BENCH

Whether it's chemical-resistant Trespa TopLab or simply a stainless steel surface you require, we can fit out your cleanroom with high quality workbenches to ensure the quality of what you do isn't compromised.



CABINET

Guardtech's high-quality cabinets are manufactured from either Trespa or grade 304/316L stainless steel. The units are available with a range of door and drawer configurations, stainless fixtures and fittings and can be arranged as mobile units on casters or static cabinets on solid levelling legs.



STEPOVER BENCH

Guardtech steppover benches come as standard seating benches on levelling legs or with storage compartments underneath for shoes, garments, PPE and consumables. Manufactured from Trespa or grade 304/316L stainless steel, Guardtech's steppover benches are durable and easy to clean.

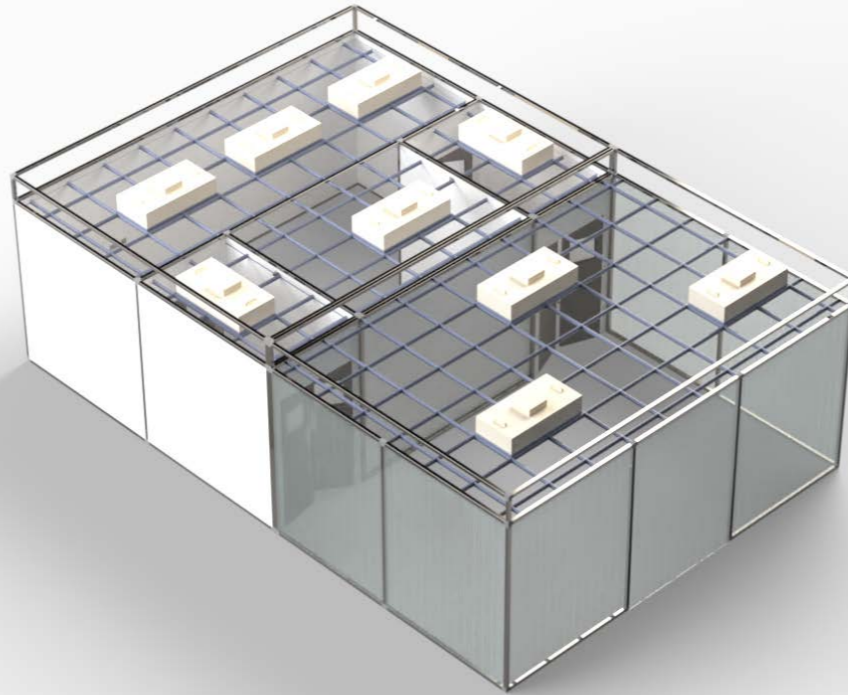
MATERIALS & CONFIGURATIONS



Isopod
rapid cleanrooms

COMPONENTS

- Stainless Steel Frame
- Aluminium Composite Roof Tiles
- Vinyl Floor
- PIR Wall Panels & Door
- LED Light Panels
- Stainless Steel Ceiling Grid
- Fan Filter Units
- Flush Fit Glazing



ISOPOD CONFIGURATOR

Build your own cleanroom with the Guardtech Group's revolutionary online Configurator tool. Simply head to www.iso-pod.co.uk and select the different structural, mechanical, electrical, furniture and equipment options you want in your Isopod Rapid Cleanroom.



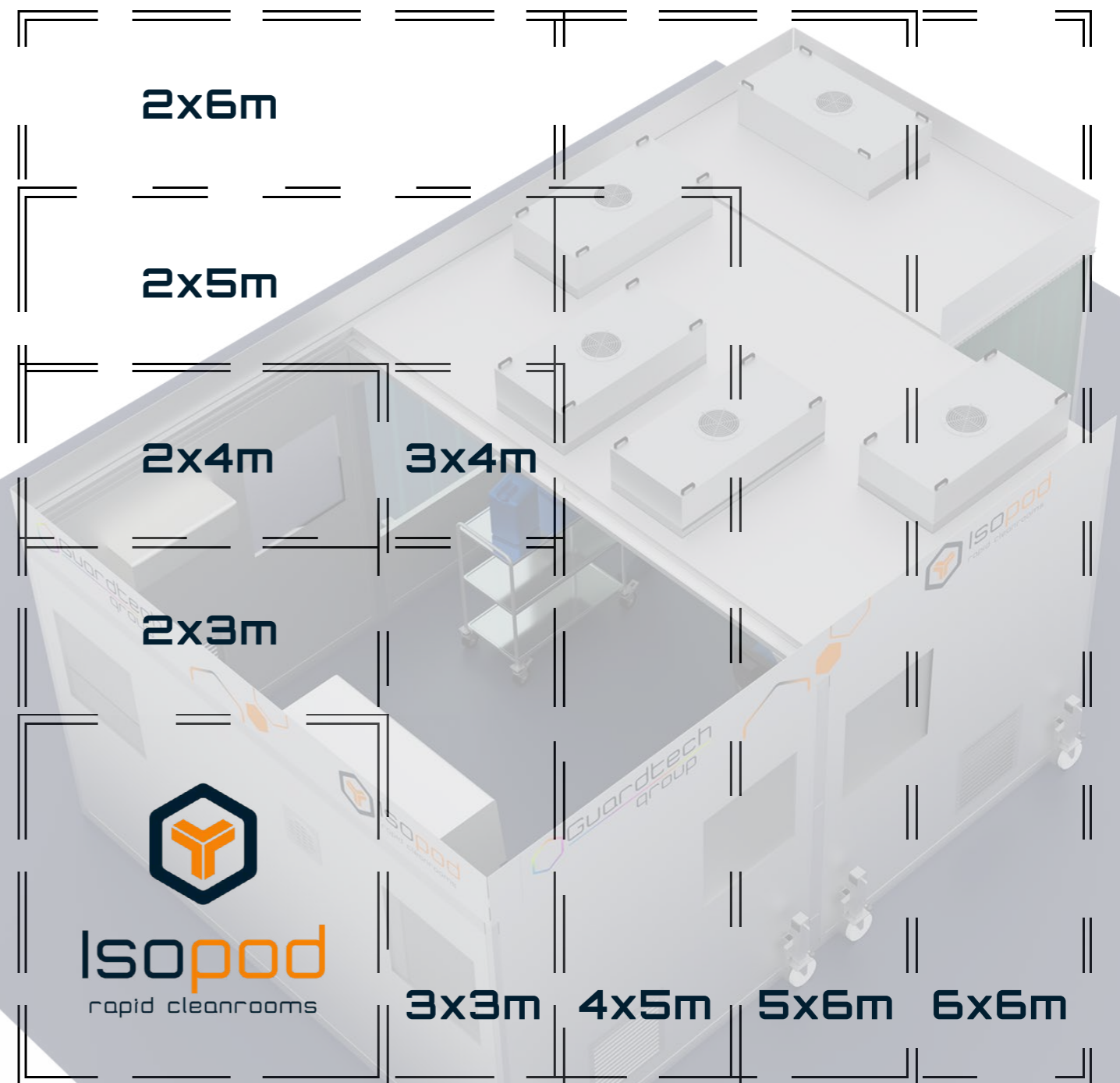
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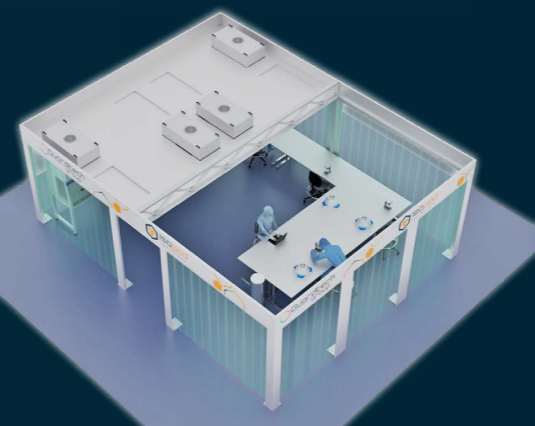
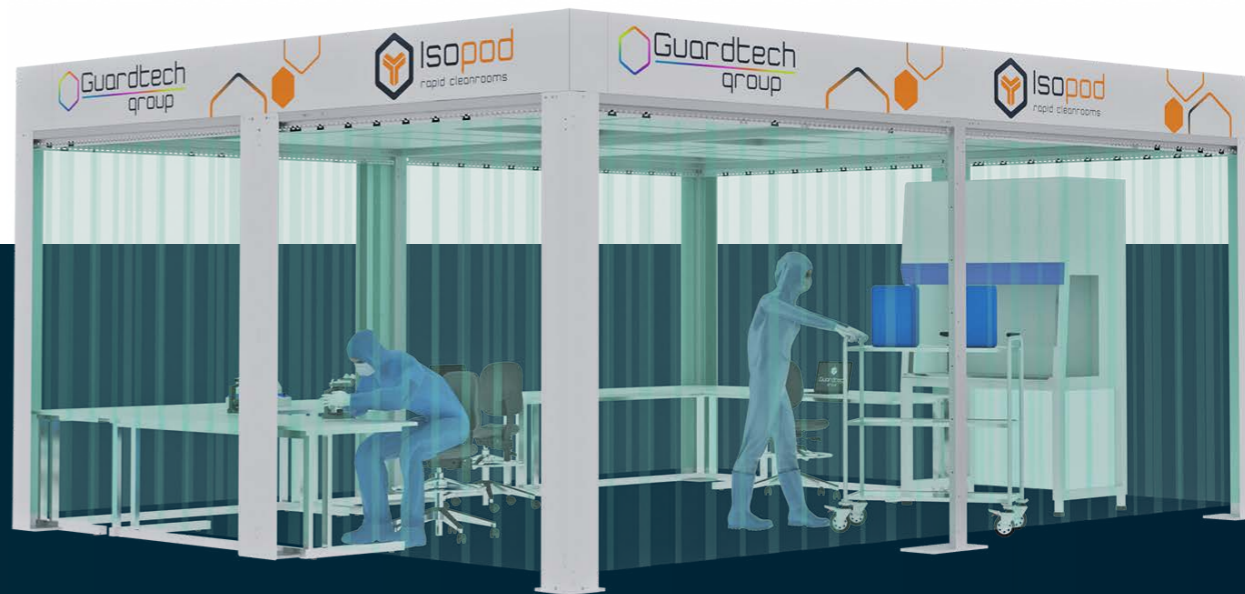
CONFIGURATIONS

There are 15 Isopod size variations in the range

Isopod Rapid Cleanrooms are available in 15 different size configurations. Choose either one or more of the following standard-sized pods that best suit your application, then configure the internal fit-out to meet your needs. Finally, either construct the Isopod yourself or book in our Install team to do it for you. Join as many units together as you require to construct your perfect rapid-assembly controlled environment.

- | | | | | | |
|------|------|------|------|------|------|
| | | | 2x4m | 3x5m | 3x6m |
| 2x2m | 3x4m | 4x5m | 4x6m | | |
| 2x3m | 4x4m | 5x5m | 5x6m | | |
| 3x3m | 2x5m | 2x6m | 6x6m | | |





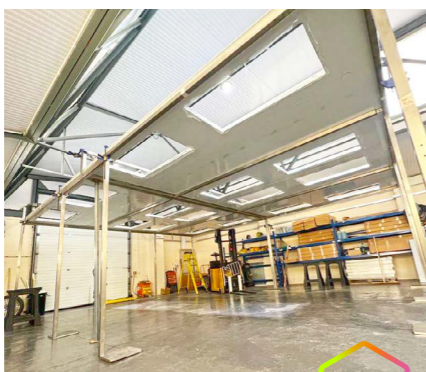
THE CLIENT

KLA – whether it's a driverless car, VR experience, or factory robotics, KLA help turn theory into possibility, helping to create technological devices and ideas that transform the future and shape our current life. KLA are often part of the most significant technological breakthroughs. Virtually no laptop, smartphone, wearable device, voice-controlled gadget, flexible screen, VR device or smart car would have made it into your hands without KLA's input.



THE BRIEF

KLA originally requested a proposal for 2 x ISO7 Softwall cleanrooms for installation at one of their sites in Denmark. After further scrutiny of the brief and consultation, Guardtech proposed an upgraded solution that utilised more robust components to allow some pressurisation in the room, more in line with IsoPod Hardwall modules.



“Full credit to the Design and Install teams...”

IsoPod Rapid Cleanrooms Project Manager Elliott Pearce said: “It was such a pleasure to be involved in leading this fantastic project for a client conducting pioneering work in their field.

“Full credit must go to the Guardtech Group Design and Install teams for working so well together to firstly plan these amazing bespoke IsoPods back at our Suffolk HQ before the installation in Denmark.

“We were really pleased with the way everything went and wish the client well with their future endeavours.”

Elliott Pearce
IsoPod Rapid Cleanrooms
Project Manager



IsoPod
rapid cleanrooms

THE TECH SPECS

A controlled environment designed, installed, cleaned and commissioned by Guardtech built to the following specification:

◆ **Structural:** GT Strip Max PVC strip curtain – 300mm wide/3mm gauge with an internal height of 2.5m, GT Lid Pro panelled ceiling, Aluminium 50 x 50 x 3mm Box Section frame with Grade 304 stainless steel connectors.

◆ **Mechanical:** GT Flow Plus Fan Filter Units (FFUs) with H14 HEPA and G4 Filters achieving 70 air changes per hour, GT Air Lite condenser-free wall-mounted HVAC unit.

THE CHALLENGES

The host room: One of the biggest challenges upon arriving at the premises in Denmark was attempting to maximise the IsoPod size within the room.

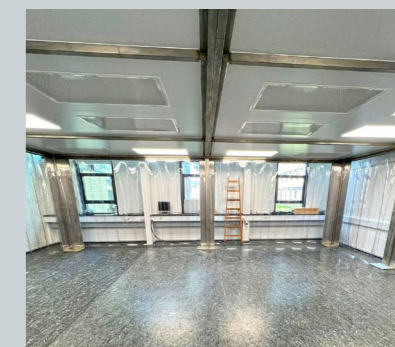
Because the IsoPods were so close to the walls of the host room, the Guardtech Group Installation team had to ensure all fixings could be accessed from inside the room.

Notch your usual ceiling: Because of the limitations of the tight host room and the restricted access to ceiling supports, the Guardtech Installation team had to be creative, implementing a ‘notch’ in some of the stainless steel to ensure the panelled ceiling construction was not compromised in any way.

Transport trouble: The delivery of the two Softwall IsoPods from Suffolk to Denmark was delayed a few days due to transport issues, meaning the Guardtech Installation Engineers had to work diligently to pull the schedule back in line with expectations.

THE RESULT

IsoPod Rapid Cleanrooms Project Manager Elliott Pearce said: “It was such a pleasure to be involved in leading this fantastic project for a client conducting pioneering work in their field. “Full credit must go to the Guardtech Group Design and



Install teams for working so well together to firstly plan these amazing bespoke IsoPods back at our Suffolk HQ before the installation in Denmark. “We were really pleased with the way everything went and wish the client well with their future endeavours.”

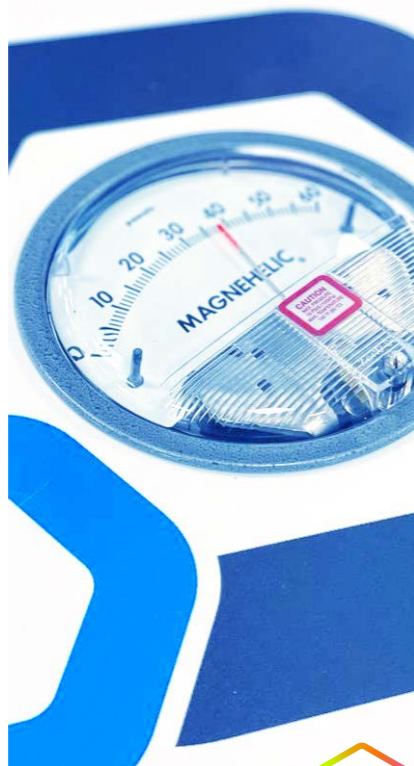


THE CLIENT

Oval Medical Technologies Ltd – a world class drug delivery business specialising in the development of autoinjector platforms with a strong patient focus. Oval designs, develops and industrialises autoinjectors that include integrated, customised primary drug containers. Oval's enabling autoinjector technology provides consistent delivery performance for a wide range of formulation viscosities.

THE BRIEF

Oval were looking to enhance the capability of their development lab to incorporate a new upgraded part of their process, opting for two conjoined 6m² Softwall Isopods. Oval had specific challenges within the room that precluded them from opting for a standard Isopod, therefore we were charged with designing two bespoke connected units.



Truly patient centric autoinjector platforms

From About on www.ovalmedical.com

"Oval aims to bring truly patient-centric autoinjector platforms to market. Founded in 2009 by Matthew Young, Oval takes a different approach, designing from the outside in, ensuring that all patient needs are met. Our team has a wide range of expertise allowing us to deliver the best solutions to partners and patients."



THE TECH SPECS

A controlled environment designed, installed, cleaned and commissioned by Guardtech built to the following specification:

- ◆ **Structural:** Grade 304 stainless steel frame with anti-static PVC strip curtain.
- ◆ **Electrical:** LED lighting panels to provide an average of 500 lux at bench level.
- ◆ **Mechanical:** Filtration provided by H14 HEPA filters powered by Fan Filter Units.
- ◆ **Monitoring:** Pressure monitoring from magnehelic gauges.

THE CHALLENGES

Internal ceiling height: Space may have been at a premium – but this wasn't a major obstacle for Guardtech. The team opted to use slimline Fan Filter Units in order to create the tallest internal ceiling that could be achieved for the Isopods.



Structural: The client wanted the units to be mobile, and so wheels were fitted. As a result, we needed to put structural reinforcement in place to reduce the risk of splay. Structural calculations were made to ensure the outward force was offset by adequate bracing.

Equipment transfer: The client needed to move equipment between the two Isopods, which meant the installation team needed to incorporate a removable bar at the bottom of the Isopods. This enabled us to retain the structural bracing while

accommodating the need for equipment transfer.

THE RESULT

Guardtech Commercial Director Mark Wheeler said: "The team enjoyed tackling the various challenges that this bespoke Isopod build presented. "Many of the lessons we learned on this project, and the new ideas we implemented for these bespoke Isopod models, have been incorporated into our ongoing development plans for the standard product range. This should prove to be extremely valuable in helping us to develop the best possible product for the widest range of future users."





▶ Press play for video content



THE CLIENT

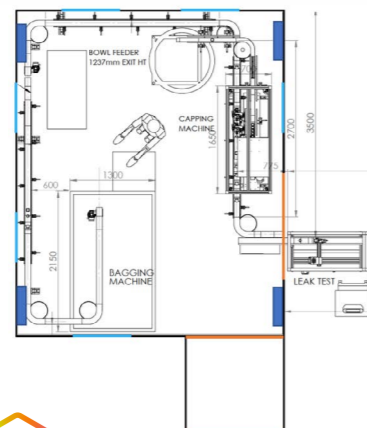
Oxford Packaging Solutions Ltd – packaging specialists based in Oxfordshire, built on a heritage of producing high-quality plastic containers for the Food & Drink, Personal Care, Household and Medical sectors. The company specialises in precision blow moulding and works in PET, RPET, PP and HDPE materials.



THE BRIEF

Guardtech were charged with providing a relatively small-sized modular cleanroom solution for use within a warehouse space. The controlled environment needed to be not just mobile, but easily moved. This led to the development of a bespoke IsoPod Rapid Cleanroom on pump-action castors.

The IsoPod would be used mainly for the client's injection moulding process, producing bottles to be used for liquid filling for food, medical use and beyond. The client required a rapid solution because of a spike in demand that they needed to capitalise on.



“We learned a lot about new effective practices with this project...”

Commercial Director Mark Wheeler said: *“This was a challenging bespoke IsoPod build which had to be put together in a busy facility for a client whose services were in high demand. “We learned a lot about new effective practices with this project, which will certainly stand us in good stead for future bespoke IsoPod projects.”*

Mark Wheeler
Guardtech Group
Commercial Director



THE TECH SPECS

A controlled environment designed, installed, cleaned and commissioned by Guardtech built to the following specification:

- ◆ **Structural:** GT Shell Plus PIR wall panels, GT Strip Lite PVC curtain, GT Lid Plus PIR suspended ceiling panel system, grade 304 stainless steel framework, 12 x jacking legs with castors, Melaphone speech panels.
- ◆ **Electrical:** GT Lux Lite LED lighting panels, 13amp plug sockets flush mounted.
- ◆ **Mechanical:** GT Flow Plus H14 HEPA Fan Filter Units with G4 pre-filters providing 200 air changes per hour.
- ◆ **Monitoring:** GT Scan Lite magnetic gauge environmental monitoring system (EMS).

and a softwall section as the client needed the cleanroom to incorporate a conveyor to bridge the outside of the room with the inside of the IsoPod. With this bespoke design, the IsoPod needed to be designed with careful consideration regarding the equipment it would be serving.

Level best: The entire structure was built on 12 levelling castors to ensure the IsoPod could be jacked up and down to move it around effectively. The IsoPod team therefore needed to consider the impact that the moving parts would have on the design of the room.

Working warehouse: The Install team had to build the IsoPod within the confines of a busy working environment – an operational warehouse with all the rigorous staff and safety precautions and expectations of a highly professional outfit. The Guardtech team had to be professional, diligent and understanding of the clients' process flow – with an extra consideration on being as tidy as possible in an operational production environment.

bespoke IsoPod build which had to be put together in a busy facility for a client whose services were in high demand.
“We learned a lot about new effective practices with this project, which will certainly stand us in good stead for future bespoke IsoPod projects.”



THE CHALLENGES

Bridging a gap: The Design team were tasked with developing a Hybrid IsoPod featuring both cleanroom panels

THE RESULTS

Commercial Director Mark Wheeler said: “This was a challenging



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