

# HYBRID ISOPOD CLEANROOM



**Northumbria University**  
NEWCASTLE



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## THE CLIENT

Northumbria University – higher education institution with a strong focus on Research & Development in Optical Communications, particularly in the context of satellite and Space-related technologies, delivered via their research group known as the Optical Communications Research Group (OCRG).



University/Optical



Temperature & Humidity: CNC



19m<sup>2</sup>



## THE BRIEF

The team at Northumbria University required a bespoke, rapid cleanroom solution to support with their Optical R&D work. However, due to the unusual limitations of their host building, the Isopod, which required both hardwall and softwall sections, needed to be designed and manufactured in a way that it could be split effectively across two rooms, whilst also incorporating an emergency breakout panel.

## “Up there with our best ever Hybrids...”

Michael Burton, Guardtech Group Associate Director of Manufacturing, said: “This is up there with the best Hybrid Isopods we’ve ever manufactured. It takes bespoke to a whole other level and that’s a real badge of honour for this team. “It shows that whatever a client requires, we’re willing to think outside the box – literally on this occasion! – to deliver a solution. I wish the client well with their important work as they bring through the next generation of talent in the fields of Space and Optical Communications technologies.”

**Michael Burton**  
Guardtech Group Associate  
Director Manufacturing

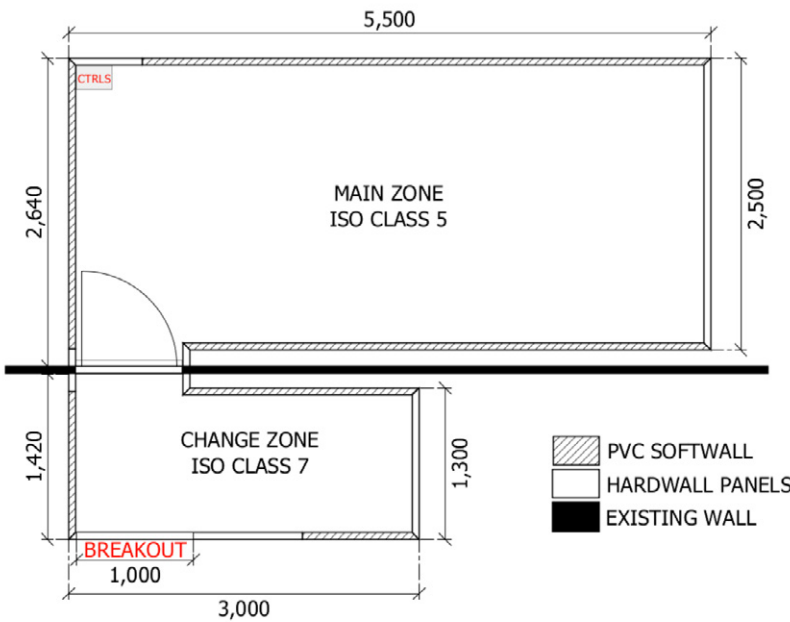


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**Guardware**  
cleanroom hardware

# OPTICAL HYBRID ISOPOD



Guardian House  
Unit 1A Homefield Road,  
Haverhill, CB9 8QP

0330 113 0303

sales@guardtech.com

www.guardtechgroup.com



## THE TECH SPECS

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

- Structural:** Grade 316 stainless steel 50 x 50mm Box Section frame, GT Shell Lite wall panels, GT Lid Plus panelled ceiling, GT Strip Max PVC strip curtain, GT Escape Max Emergency Breakout Panel.
- Electrical:** GT Lux Extra Thin flush-mounted LED lighting panels achieving 500 lux (200 lux in the Personnel Airlock), 13amp small power outlets in three-compartment PVC dado surface-mount trunking.
- Mechanical:** 4 x GT Flow Plus Fan Filter Units (FFUs) with H14 HEPA and G4 Filters achieving up to 200 air changes per hour (ACPH).
- Monitoring:** GT Scan Lite analogue environmental monitoring magnehelic gauge system displaying differential pressure.

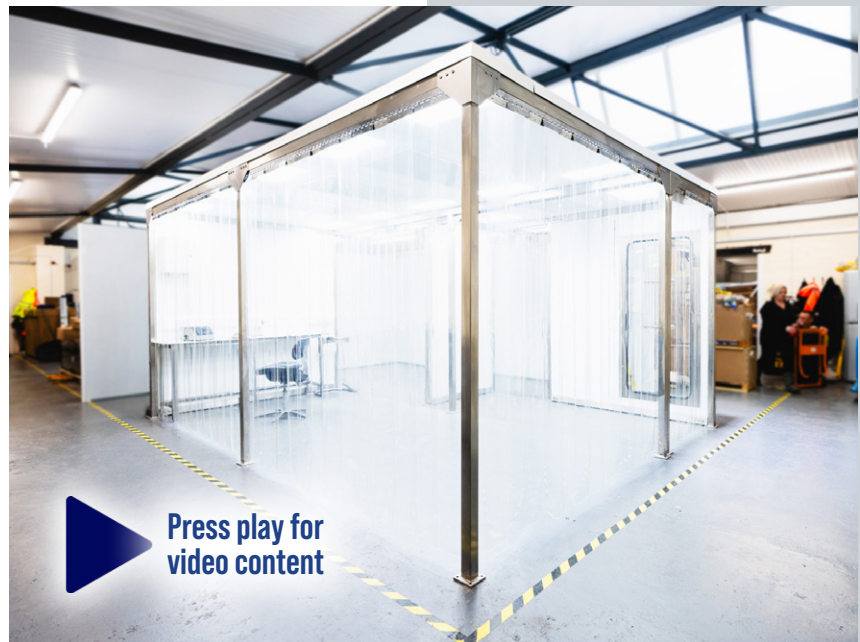
## THE CHALLENGES

**Split's a tricky one:** Michael Burton, Guardtech Group Associate Director of Manufacturing, who runs the Isopod facility and led on the development of this bespoke model, suggested the most challenging aspect of the project was

the fact the Isopod had to be split across two rooms.

He said: "So you have the main process space of the Isopod in one room and then the change area on the outside room – and we're installing it so there's a clean doorway between the two Isopods – so it's essentially two Isopods feeding one room."

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Guardtech House  
 Unit 1A Homefield Road,  
 Haverhill, CB9 8QP  
 0330 113 0303  
 sales@guardtech.com  
 www.guardtechgroup.com



This is unlike anything we've done before – so it was a nice challenge for the Design Team and for myself to produce something bespoke which worked for the client."

**No ceiling to our creativity:** The project saw overlapping Project Managers from the client's side – which meant there were revisions which had a major impact on the finished product. The first PM wanted to remove the ceiling from the Isopod, whereas the second had a change of heart and asked for a ceiling to be reinstated. Therefore, Burton and the team had to rework the design and develop some bespoke framework additions so that a ceiling could be "dropped into place – essentially hanging from the inside of the modules. He said: "It's a specially configured Z-bracket that comes off from the top, drops 100mm and then creates a perimeter trap on the inside – allowing the panels to sit inside the ceiling. Rather than cutting any legs down, we lowered the ceiling inside the Isopod. It's a quick and simple idea but also a great solution."

**Highly classified:** Another significant hurdle to overcome was delivering an Isopod that met ISO5 classification whilst still incorporating the softwall PVC

strip curtain element of the design. Burton said: "We've got three 1200 x 600mm Fan Filter Units in a room that's only 5m x 2.5m – and when you factor in the specially made 'super thin' LED lighting panels, it's a lot to fit in such a small space! The LED panels are not among the usual options we tend to use, so we also had to construct bespoke frames for them."

**Fully equipped:** The Isopod also had to be designed to fit in a busy host room alongside a number of pieces of existing, yet critical, equipment. Burton adds: "The Isopod was designed to fit in the lab along with all the client's other benching and fume cabinets – so that was another challenge, making sure it fit the space but was also fit for purpose."



## THE RESULT

**Michael Burton, Guardtech Group Associate Director of Manufacturing, said: "This is up there with the best Hybrid Iso-pods we've ever manufactured. It takes bespoke to a whole other level and that's a real badge of honour for this team.**

**"It shows that whatever a client requires, we're willing to think outside the box – literally on this occasion! – to deliver a solution.**

**"I wish the client well with their important work as they bring through the next generation of talent in the fields of Space and Optical Communications technologies."**

