



THE CLIENT

Founded in 2017, the client are global leaders in quantum technology, creating a brighter future enabled by quantum. The client develop and build enterprise-ready, leading-edge quantum computers based on superconducting qubits and their patented Coaxmon chip.



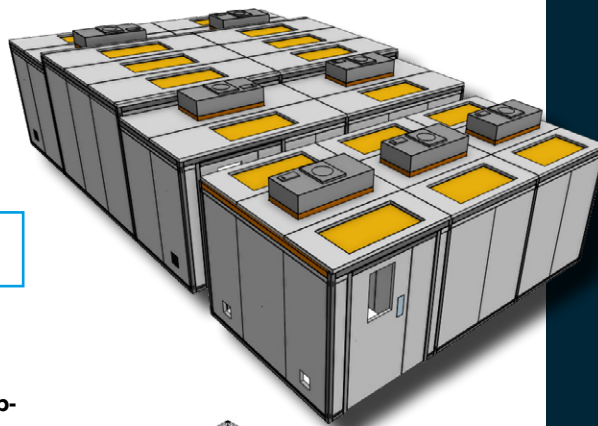
Micro-electronics



Temperature:
Ambient (host room)

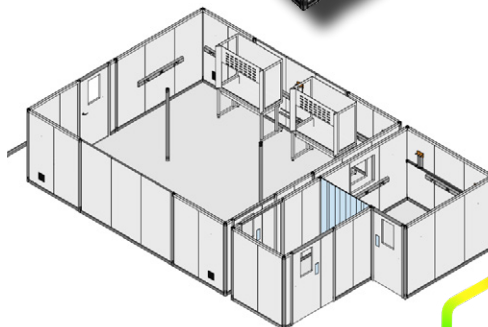


60m²



THE BRIEF

The client planned to convert an existing space at their premises into a classified cleanroom. After collaborating with the Guardtech Group Commercial Team, it was determined that an Isopod Hybrid unit was the best solution for the project due to its shortened design, procurement and installation periods. In addition, the impermanence and self-supported nature of the system is advantageous in the event that the client moves on to a new host building.



“Free-standing pod the ideal solution...”

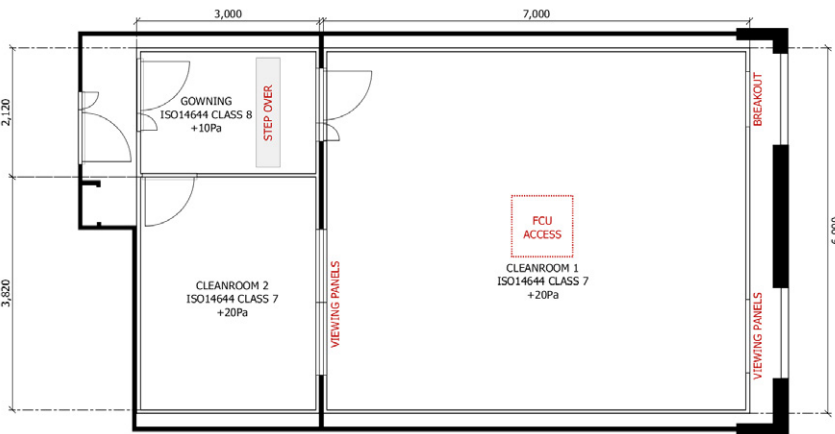
Isopod Rapid Cleanrooms Manufacturing Manager Michael Burton said: “This project provided the team with an opportunity to show off our immense skills and expertise when it comes to creating bespoke solutions that meet a range of different needs.

“The client would usually have proceeded with a traditional modular cleanroom for this build, given the complexity of the controlled environment and all the associated services. However, they didn’t want to affect the host building in any way and, therefore, our free-standing Isopod provided the perfect solution.”

Michael Burton
Guardtech Group Associate
Director Manufacturing



Isopod
rapid cleanrooms

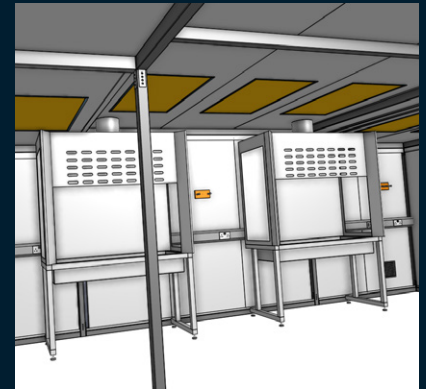


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THE TECH SPECS

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

◆ **Structural:** 60mm Box Section stainless steel frame, GT Shell Lite PIR wall panels, GT Lid Pro 50mm Quadcore insulated Cleansafe 120 powder coat ceiling panels, GT Deck Lite ESD vinyl flooring tile system, GT Access Plus single doors, GT Escape emergency breakout panel, GT Strip Max PVC strip curtain.

◆ **Electrical:** GT Lux Pro LED Lights achieving 500 lux – flush-mounted in Ceiling Panel with emergency light fittings, 13A Double Sockets and RJ45 Ethernet Sockets in 3-compartment curved profile trunking around room perimeter and columns.

◆ **Mechanical:** GT Flow Max slimline Fan Filter Units (FFUs) with H14 HEPA and G4 Filters achieving up to 40 air changes per hour (ACPH), DI water, Nitrogen, Argon and CO2 outlets.

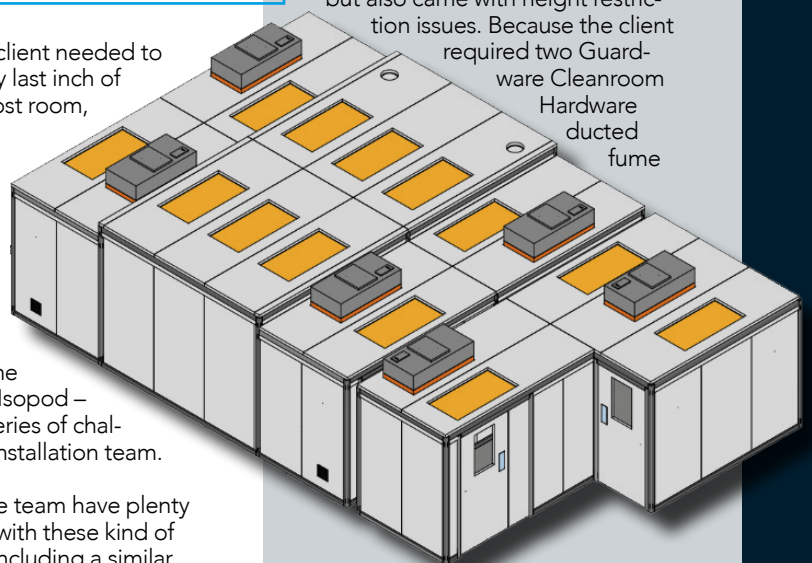
◆ **Equipment:** 2 x ISO Fume Lite single wall ducted fume cupboards with sliding front sash, glass side panels and epoxy coated mild steel construction.

THE CHALLENGES

Tight fit: The client needed to maximise every last inch of space in the host room, so the Isopod Hybrid was designed to fill every bit of space possible. This meant that there was little to no space to work with on the outside of the Isopod – presenting a series of challenges to the installation team.

Fortunately, the team have plenty of experience with these kind of projects now, including a similar large Isopod Flexi softwall double cleanroom installation in Copenhagen, Denmark for KLA, so they were able to use all that expertise to ensure this unit worked perfectly in the space.

Raised expectations: The client required this Isopod to be spread across two rooms – with a separate personnel airlock (PAL) pod featuring a GT Strip Max PVC strip curtain section, plus two hardwall cleanroom process pods. This not only made it a tight fit width-wise but also came with height restriction issues. Because the client required two Guardware Cleanroom Hardware ducted fume



hoods as part of the project, the Isopod team incorporated a specially engineered raised ceiling section in the middle of the Isopod.

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MICRO-ELECTRONICS ISOPOD



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This innovation included lower sections at either end to ensure enough air could pass through the Fan Filter Units in order to achieve the required ISO7 classification.

HVAC interfacing: This Isopod had to be interfaced to an existing HVAC system – which meant installing two ducted fume hoods that connected to a PVC extract system that went up to the roof of the host building. The HVAC system, which feeds the host room, therefore needed to be adjusted to compensate for the Isopod pressure cascade and extract system – an elaborate balancing act that kept the Isopod Design and Installation Engineers on their toes. In an unusual set-up for an Isopod, this project featured fitted extract, plumbing, DI water, gas depletion systems, as well as argon and oxygen services. A great example of how the Guardtech Group will deliver a bespoke system that goes beyond the normal expectations to ensure a client's needs are met.

Room for growth: This was the first 'next generation' Isopod to feature a brand-new innovative connection system that has been specially engineered to assemble without corner connectors. As a result, it will now be easier than ever before for clients who wish to extend the size of their Isopods in the future.

Floor-some work: Based on the complexity of the services and utilities, as well as the sheer size of the Isopod, a project like this would usually have been developed as a traditional modular cleanroom. However, the client was adamant they didn't want to affect any aspect of the

existing building – so, as an example, no holes could be drilled in the floor for panel track. Therefore, a free-standing stainless steel frame Isopod was the perfect solution to deliver a high-performance modular cleanroom that had no impact on the integrity of the existing space.





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THE RESULT

Isopod Rapid Cleanrooms Manufacturing Manager Michael Burton said: "This project provided the team with an opportunity to show off our immense skills and expertise when it comes to creating bespoke solutions that meet a range of different needs.

"The client would usually have proceeded with a traditional modular cleanroom for this build, given the complexity of the controlled environment and all the associated services. However, they didn't want to affect the host building in any way and, therefore, our free-standing Isopod provided the perfect solution.

"This one is right up there with Northumbria University's Hybrid in terms of how special it is – it features all of the latest modifications we've come up with. There are some really clever technological innovations on both models, surpassing anything we've produced to date with Isopod – a true industry-leading solution."