



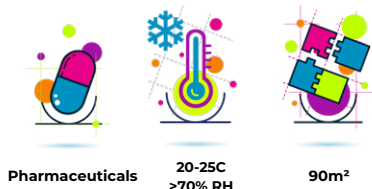
▶ Press play for video content

THE CLIENT

GenMar Pharma GmbH – a German Biotech company formed through a partnership between Aerogen Pharma and Lyomark Pharma. They focus on developing inhaled therapies for respiratory diseases, including treatments for premature infants with respiratory distress syndrome. Together, the companies combine Pharmaceutical expertise and innovative delivery systems to develop effective, non-invasive respiratory treatments.

THE BRIEF

Guardtech were contracted to develop a Cleancube container downscale-separator lab for GenMar Pharma at their Vion site in Germany to provide surfactant extraction batches for groundbreaking infant nebulisers. Based on the client's URS and RIBA 2-3 design phases, a pre-fabricated, containerised R&D facility was developed, tailored for process development and rapid deployment. The design had to integrate HVAC, EMS and compliant engineering systems that aligned with German and EU standards while enabling efficient installation, scalability and future relocation.



Top: GenMar's larger downscale lab. Bottom: The smaller-scale separator unit.

“Proud to support such an amazing initiative...”

Marc Lambert, Guardtech's International Project Manager, said: "What makes this project particularly special is the impact it will have beyond the facility itself. "Knowing that this laboratory will play a role in the development of nebulisers to support infants with breathing difficulties gives the work a real sense of purpose. "It's not just about engineering a solution – it's about contributing to something that can genuinely improve lives, and that's something we're all proud of."

Marc Lambert
Guardtech International
Project Manager



cleancube
mobile cleanrooms



▶ Press play for video content



GT Shell official panel system partner:



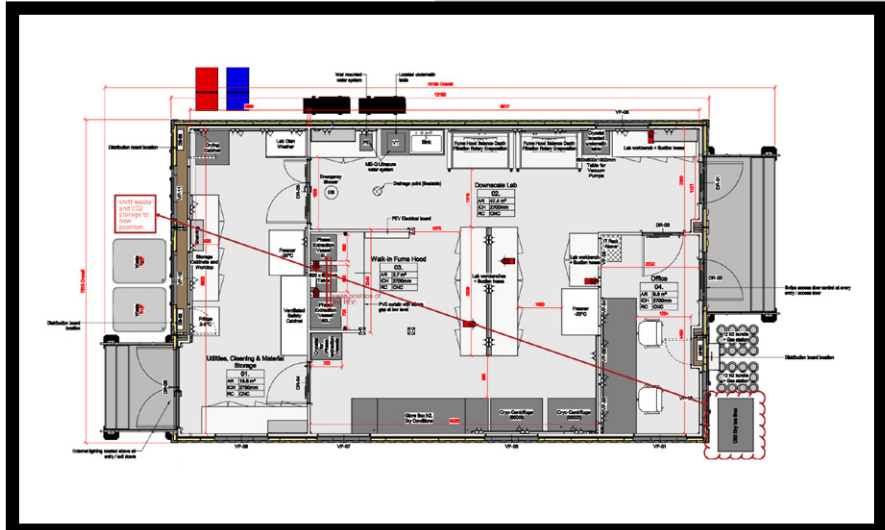
Partner

THE TECH SPECS

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

◆ **Structural:** GT Shell Max Kingspan Quadcore insulated fully flush wall panel system (main lab), GT Shell Lite wall panel system (separator lab), jackpads with 0.5m clearance for flood mitigation and underfloor services access, GT Lid Plus Kingspan insulated panel ceiling system with integrated service void and plenum, GT Deck Plus chemical-resistant ESD vinyl flooring system capped & covered, glazing panels with automated external window shutters, GT Access Plus Kingspan single doors with vision panels.

◆ **Electrical:** GT Lux Lite LED lighting panels, flush-mounted – delivering 500 lux at working height with PIR activation and emergency back-up, Laboratory: 32x 16A outlets, 6x 32A supplies via GT Power distribution system. Separator: 6x 16A outlets, 4x 32A supplies, Perimeter trunking via GT Trunk Lite containment system



with integrated CAT7 network infrastructure and RJ45 outlets – fully aligned with German electrical and safety standards.

◆ **Mechanical:** External packaged GT Air Pro bespoke air handling unit (AHU), providing heating, cooling, humidification and dehumidification, GT Flow Pharma terminal filter housing with H14 HEPA filtration and gel seal, low-level return air path to maintain airflow patterns approximately 10% fresh air with recirculation, incorporating ener-

gy-saving setback mode. Separator Container: wall-mounted GT Air Lite recirculating AC systems with desiccant drying capability, dedicated process extract systems integrated for fume cupboards, solvent storage and specialist equipment.

◆ **Monitoring & Controls:** GT Scan Pro Environmental Monitoring System (EMS) with digital touchscreen display transmitters with alarms – fed by temperature, humidity & pressure probes.

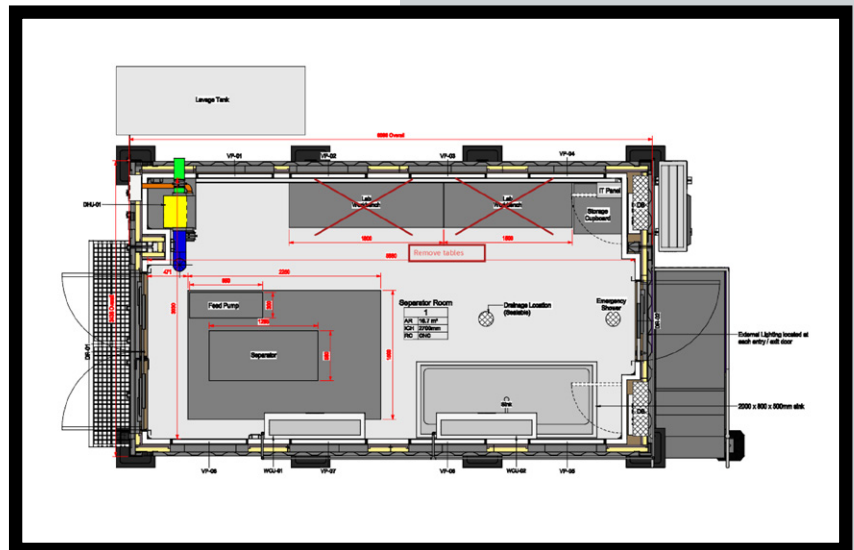
Continued on next page



▶ Press play for video content

AHU controller digital display for setting target temperature, humidity and fan speed, multi-point probes across main laboratory, separator and critical equipment zones, digital interface for GT Air Pro AHU and GT Flow Pharma filtration, enabling environmental setpoint control and data logging.

◆ **Furniture & Equipment:** Stainless steel glovebox for four operators with PMMA antechamber, air release system and O₂% security analyser, Trespa work benches, Trespa shelving, Trespa unit with sink, mobile under-bench Trespa cabinets, grade 304 stainless steel utility sink, 90min fire resistant ventilated flammable storage cabinet with extract, grade 304 stainless steel storage cabinet, walk-in fume cupboard and bench-mounted hoods with integrated extract systems, external nitrogen bottle storage with automated switching and distribution, emergency shower and eye wash stations, oxygen depletion monitoring and fire detection systems.



of unique engineering and operational challenges that required innovative, first-of-their-kind solutions from the Guardtech team.

Hat's off: One of the primary challenges was accommodating specialist laboratory equipment within the physical constraints of a standard shipping container. The inclusion of a full-height, walk-in fume cupboard exceeded the typical internal height limitations, creating an immediate conflict

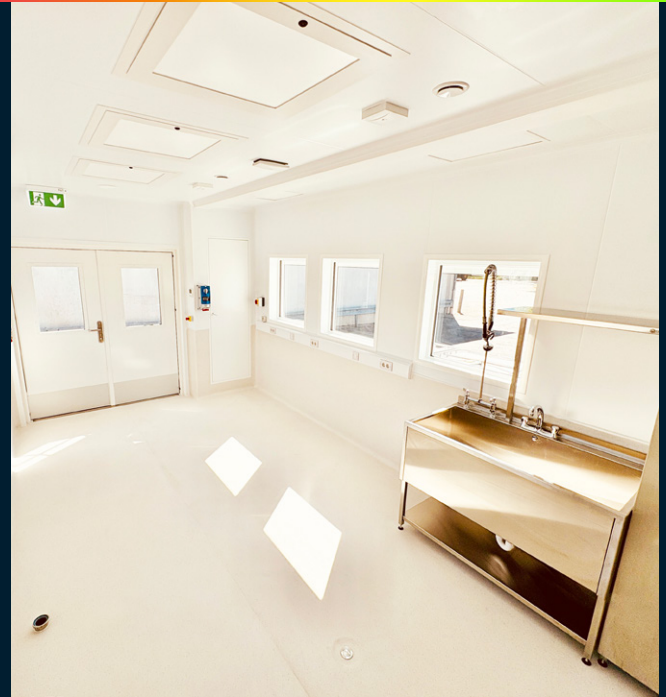
between functional requirements and structural feasibility. To overcome this, the CleanCube team engineered a bespoke "top hat" extension – removing the original container roof and reconstructing it within a raised framework. This approach not only solved the height restriction but marked the first time this method had been deployed, demonstrating a willingness to rethink conventional container design.

Continued on next page

THE CHALLENGES

The GenMar CleanCube project presented a series

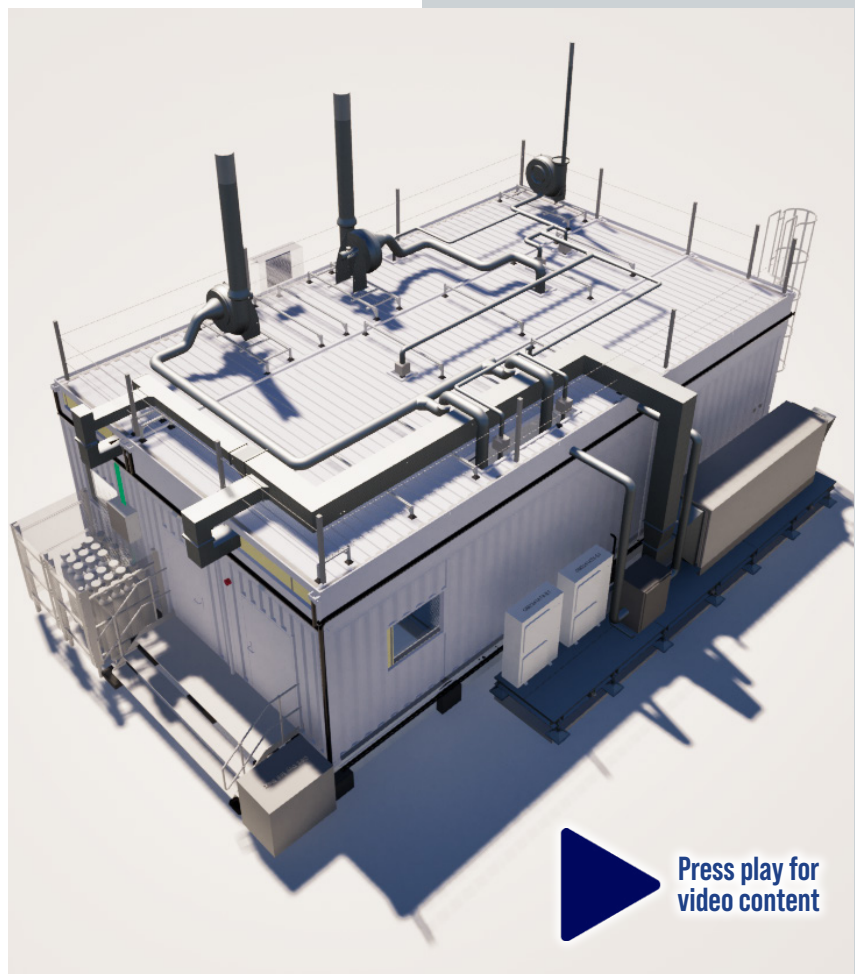
PHARMA CONTAINER LABS



Wall protection: Another major challenge came from the nature of GenMar's process, which involved heavy use of liquids and chemicals in what effectively became a highly wet operational environment. Standard cleanroom finishes were not sufficient to handle the risk of chemical splashes, pooling and long-term exposure. The team responded by extending the vinyl flooring significantly up the walls – far beyond typical specifications – to create a sealed, protective barrier. This ensured that any spills would not compromise the wall panels or underlying structure, particularly in areas subject to frequent washdown or chemical use.

Drain makers: Closely linked to this was the issue of controlled drainage. The laboratory required a system that could safely contain hazardous spills rather than immediately allowing them to exit into drainage systems. Off-the-shelf solutions did not meet this requirement, so the team developed a bespoke floor drainage system incorporating a plug mechanism. Crucially, the floor itself had to be manually reworked and tapered to direct liquids toward the drain point, ensuring that operators could safely manage and remove spills in a controlled manner.

Continued on next page



Press play for video content

PHARMA CONTAINER LABS



This level of detail in floor design was critical to both safety and usability.

Rainwater management: Environmental exposure also posed a challenge, particularly in managing rainwater on the external structure. Without intervention, water could accumulate on the flat container roof, leading to long-term performance issues. To address this, the team introduced a custom rainwater management system that directed runoff toward the container edges and down through integrated corner outlets into hopper and pipe systems. This ensured durability and reliability of the unit in outdoor conditions.

Complex systems: The project also required the integration of multiple complex systems – HVAC, extraction, and specialist laboratory equipment – within a compact footprint. With significant extraction demands from the fume cupboards and glovebox systems, maintaining stable environmental conditions was a challenge. The team implemented a bespoke air handling solution capable of balancing airflow requirements while supporting temperature, humidity and process-specific conditions,



Press play for video content

including oxygen monitoring.

Logistics: Transport and installation added another layer of complexity. The modular labs had to be designed for international shipping while maintaining structural integrity and cleanliness. The team developed a packaging and logistics

approach that allowed the units—including the newly engineered top hat sections—to be safely transported via standard road and sea freight. This included fully wrapping the units in protective, recyclable materials and carefully planning how components were split and stacked for transit.

Continued on next page

PHARMA CONTAINER LABS

Contact Us



Press play for video content

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

☎ 0330 113 0303

✉ sales@guardtech.com

🖱 www.guardtech.com



Collaboration: Finally, the project involved several innovations being deployed for the first time, from the top hat structure to new lighting systems and safety features. This required close collaboration across design, manufacturing and installation teams to ensure that new concepts could be successfully implemented in a live project environment. The ability to adapt, test and deliver these solutions under real-world constraints was a defining aspect of the Cleancube team's approach on this project.

THE RESULT

Marc Lambert, Guardtech's International Project Manager, said: "Everyone at Guardtech is incredibly proud to have delivered this project for GenMar. It's a fantastic example of what can be achieved when innovation, collaboration and determination come together to overcome real-world challenges.

"What makes this project particularly special is the impact it will have beyond the facility itself. Knowing that this laboratory will play a role in the development of nebulisers to support infants with breathing difficulties gives the work a real sense of purpose. It's not just about engineering a solution – it's about contributing to something that can genuinely improve lives, and that's something we're all proud of."

