

## Driving Modular Cleanrooms to Denmark

Date: 09-06-2010 10:26 AM CET

Category: [Health & Medicine](#)

Press release from: [Clean Modules Ltd](#)



The new cleanroom facility completed for the multinational company Ferrosan is a truly modular facility – designed and constructed in the United Kingdom and installed in Denmark.

The cleanroom facility for Ferrosan was completed within a tight time schedule of just 14 weeks. The 325m<sup>2</sup> cleanroom facility was pre-manufactured as a whole in the UK, shipped to Denmark and positioned on site, with final hook-up, finishing module connections and services, commissioning and validation being completed on site in Denmark.

Ferrosan is an international consumer healthcare & medical devices company selling its products in more than 60 countries worldwide. The company is continuously looking to offer more innovative and diverse products to its customers. In order to reduce time to market, Ferrosan chose for innovative construction methods to accommodate their latest product line.

Choosing the right location and construction method for a new cleanroom facility can make a huge difference to the programme, budget and end result of a project. Ferrosan conducted extensive research into what construction method would suit best with Ferrosan's budget, time restraints and user requirements.

### Tight timescales

The tight time restraints would not allow for the construction of a new building in the conventional way and renting existing facilities at an alternative site would add to the running costs of the facility. As a result, Ferrosan opted to construct their new cleanroom facility using alternative methods.

After further research, Ferrosan paired up with Clean Modules; a UK cleanroom company that specialises in the design and construction of cleanrooms, especially using pre-built and modular construction for use worldwide. The modular cleanroom solution is a quick and cost-efficient construction method for cleanroom projects without an existing shell building.

This construction method is based on factory manufacture of the cleanrooms in modular sections, which are then shipped to site, installed and commissioned.

Clean Modules's modular cleanrooms are constructed with their System I cleanroom panels, composite panels and concrete board within a robust hot-rolled steel frame. On site pad foundations need to be installed and services brought to the cleanroom perimeter. The facility does not contain any timber and unlike cleanrooms constructed within converted timber cabins, Clean Modules's modular cleanrooms feel and behave like a rigid traditional building and with a similar durability.

### Optimising Construction Time

To ensure Ferrosan's competitive position within the pharmaceutical and medical devices markets, time was of the essence. A key benefit of Clean Modules's modular cleanroom construction method is that the facility is constructed as a whole away from

site. In the UK, Clean Modules constructed the 235 m<sup>2</sup> modular cleanroom facility in the United Kingdom, while in Denmark another Clean Modules site team prepared the foundations and converted an existing 90m<sup>2</sup> in-situ laboratory into an EU GMP Grade D preparation area. The two areas would later be linked together during installation of the modules.

Along with the modular cleanroom facility, a plant skid module housing the Air Handling Unit (AHU) and associated plant was prepared in the UK. All the equipment was installed and pre-commissioned away from site. The AHU only had to be connected to the modular cleanroom facility on site. Other services were also installed off-site with a plug-and-play system which were plugged-in, re-tested and commissioned on site.

Traditionally built cleanrooms require the shell building to be completed first, but as the modular cleanroom facility and the air handling plant were prepared off-site, while in parallel the foundation and in-situ cleanroom area being completed in parallel, construction time was optimised and considerable time was saved.

Time on site costs money, especially when the construction site is in another country and crews have to be sent abroad. The benefit of the modular cleanroom solution is that the facility as a whole is constructed away from site in a factory environment. Consequently, the ability to construct the facility at Clean Modules's premises, with all the design and construction facilities nearby, resulted into more efficient use of time and reduced labour and specialist trade costs.

### Flexibility through Modular Design

Ferrosan operates in a competitive market and being able to quickly respond to market demands is essential to Ferrosan's success. Designed with the future in mind, the new facility is both flexible and versatile. To ensure manufacture of the new product can develop with Ferrosan's demands, the facility will easily allow for future extensions with additional modules.

The hot-rolled frames ensure easy transport, provide the backbone to the facility and make modular cleanrooms feel like traditional rigid buildings. The steel frames also allow for a more flexible lay-out, enabling longer ceiling spans and the creation of rooms that are larger than the individual modules. The modular cleanroom facility for Ferrosan houses a 160 m<sup>2</sup> EU GMP Grade C production hall that spreads through all five modules. The production hall has a dedicated filling area with uni-directional air flow, for filling the product into its primary packaging. Additionally, the production hall houses a secondary packaging area with two interconnected packaging systems totaling 17 metres in length.

An EU GMP Grade C product weighing and mixing room with dedicated extract system and an EU GMP Grade C wash room are also housed within the new facility. The modular cleanroom facility is linked to an existing building that accommodates an EU GMP Grade D preparation and final packaging area. A pressure plenum ceiling system with Fan Filter Units runs through the five unit modular cleanroom facility and distributes the air into the cleanroom areas in the module and the existing building. A plant skid is mounted externally on the roof, on top of the modules, housing the Air Handling Unit and associated plant and is connected to the plenum system. The plant skid also houses the cooling, vacuum, extract and control systems for the modules' and production equipment.

### Transport to Site

Ferrosan's modular cleanroom facility is designed and constructed in five modular adjoining hot-rolled frames, each at 10.3 metres long by 4.9 metres wide and 4 meters high. Due to the size of the modules, Clean Modules works with specialist transport companies such as Abnormal Loads Services for the transport of the modules from Clean Modules's premises to site.

The Ferrosan modules were delivered in Denmark by a combination of 3, 4 and 5 axle wafer deck low loaders with private escort cars. The modules were loaded and off-loaded by a 250 tonne mobile crane with a combination of 4 x spreader beams to ensure an evenly distributed 6-point lift

### Fully Compliant

The new cleanroom facility is fully compliant with EU GMP cleanroom standards and Danish and European building standards. Initial product trials have been completed successfully. Ferrosan will be conducting further product trials over the next months and plans to launch its new product within a year. The new cleanroom facility will ensure that Ferrosan will continue to offer innovative products to its customers.

This project has been a fine example of Clean Modules' modular cleanroom solution and will serve as a flagship for other modular cleanroom installations throughout Europe. Once again, this new exciting cleanroom facility proves that modular cleanrooms can be factory built away from site, transported and installed and commissioned anywhere in the world in less time and at lower costs than traditional built cleanrooms.

About Clean Modules Ltd:

Clean Modules Ltd specialises in the Design, Construction, Installation, Project Management, Commissioning and Validation of Cleanrooms, Laboratories and associated facilities, especially using pre-built and modular construction for use worldwide.

We provide our facilities on a turnkey basis from design to completion. We cover all industries but have particular specialist knowledge of the Life Sciences, Healthcare, Pharmaceutical, Biotechnical and related industries. Typical examples include facilities for Hospitals, Pharmaceutical Manufacture, Research and Laboratory use. Recent applications include Stem Cell Research and Aseptic Manufacture of injectable drugs. We can provide the full fit out of Cleanrooms together with the support services needed to complete a clean room application. I have included a list of some of the projects we have undertaken and some press releases.

In addition to clean rooms we provide a full consultancy and training service for all aspects of clean room operation. We can also offer a clean room refurbishment service and routine maintenance and service for air conditioning and associated clean room plant using our own team of specialist staff.

Clean Modules Ltd specialises in a wide variety of Cleanroom construction methods, to offer a solution to every situation, specification and site restriction.

Contact: Mr. Jelle Hanse (Export Executive)

Clean Modules Ltd  
Unit 3, Hawthorn Road  
Castle Donington  
Derby  
DE74 2QR  
United Kingdom

Tel: +44 1332 696970

Fax: +44 1332 696963

Email: [export@cleanmodules.co.uk](mailto:export@cleanmodules.co.uk)

Web: [www.cleanmodules.co.uk](http://www.cleanmodules.co.uk)

**[You can find this press release here](#)**