

## Case Study

# Meggitt finding the right plan for a top CLASS new facility



**Headquartered in the United Kingdom, this international group operates in North America, Europe and Asia. Known for its specialised extreme environment engineering, Meggitt is a world leader in aerospace, defense and energy. Meggitt employs more than 12,000 people at over 40 manufacturing facilities and regional offices worldwide.**

Meggitt is currently in the process of relocating its global headquarters to a new purpose-built facility in Ansty, near Coventry. The site will also house the consolidated operations of three existing sites in the area. These three sites will relocate into one new warehouse and share the same production facility. To help specify operational requirements Meggitt partnered with Cirrus Logistics – a warehouse simulation technology provider, soon to become Körber Supply Chain. Meggitt implemented CLASS, the leading warehouse simulation solution, to build a business case and test warehouse operations such as aisle congestion, resource requirements, risk reduction, and cost savings.

### The challenge

Creating a shared services operation for stores and distribution within a new 500,000 sq. ft. site based in

the Midlands that integrates 3 separate manufacturing operations, each with their own unique logistical needs.

### The solution

The warehouse project board members suggested that a study be carried out to confirm the design. They wanted to be sure that the new warehouse would be sufficient in size and asked the project team to investigate options for testing the design.

To win the board's confidence, the team needed to:

- Properly estimate the number of personnel required to run the facility
- Resolve any potential congestion in the yard loading bay
- Identify bottlenecks in the process
- Test an on-site tow train for parts and finished product delivery to and from 4 production cells
- Offer a visual aid of the project to share within the business to showcase the design.

The facility design was already complete. A compact warehouse, the site uses VNA (very narrow aisle) and



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14 vertical lift machines for storage. In the yard, deliveries are received either by small courier vans (with their own seven parking slots and dedicated goods-in-vestibule), as well as a yard loading bay for larger vehicles beneath a canopy.

To provide these materials to the board, the Meggitt team considered various options. The team needed to prove out the operational model and considered a wide range of tools from spreadsheets to software. They had never used a tool like warehouse simulation before and were not clear on its capabilities or benefits.

Having the ability to provide a virtual simulation of how logistics planning would work in this new facility and visually illustrating the benefits of the system was invaluable to the Meggitt team. It helped speed up the investment decision and enabled important team discussions prior to construction to ensure the system was fully optimised to support the needs of the greater business.

### At a Glance

After evaluating various options, Meggitt valued the quality output from CLASS's warehouse simulation and found it a good fit for the project. The flexibility of analysis and reporting offered, along with 'what if' scenario testing, made the solution stand out. CLASS helped with:

- Validation of new facility design
- Testing assumptions without any real-time data
- A 3D visualization for communication around the business
- Ensuring optimum efficiency – testing performance
- Running 'what if' scenarios

### The Solution

Without any data from this new site, Meggitt needed to model an average week for the proposed operation based on historical data from the existing sites. With these data points, the team needed to run four scenario tests to test solutions. These included:

- Increasing volumes to evaluate operations under peak volume
- Testing the team size and resources against the impact of a changing quality inspection process
- Weighing the potential benefits of adding more loading bays
- Testing different tow train sizes and capacity

Perfect for new builds, the CLASS solution tests designs before the building process begins saving time



and money. As a simulation platform, it allows users to design, test and re-design complex warehousing solutions in a virtual computer environment by changing many different parameters and measuring their impact.

**“The analysis within CLASS is fantastic and enables you to go through lots of assumptions. Plus, the ‘what-if’ scenarios for our stores warehouse within the production facility has enabled us to understand and validate and learn how we can support peak volumes and what additional resource would be required.”**

Kalvin Evans, Project Lead  
Meggitt

To run these simulations, a small team from Körber worked with Meggitt to create a CLASS model of the design. To properly support the project and bring in all necessary stakeholders for a highly-visible project, Meggitt's team included the project lead, operations manager, logistics manager, the head of planning and logistics, the quality inspection team, and a supporting team providing specialised input from their respective areas as needed.

### Extending the Project

Initially, the team wanted to run simulations without detailed modelling of the lineside delivery. In these tests, the tow train would disappear after entering a doorway to the production hall and would remain in this “black box” for an assumed 60-minute delivery time before returning to the warehouse. Using the flexibility of CLASS, Meggitt decided to build a more detailed simulation showing what happens inside the black box to evaluate train delivery time. With this

addition, the team saw more clearly the demand of the train to deliver the required volume to 25 drop locations around the production hall. Instead of the estimated 60-minute delivery times, the simulations showed a 38-minute delivery time on average. This discovery helped the team more accurately depict their true operations between production and the warehouse.

### Bottleneck Discovery

The most significant bottleneck identified in the project was in Meggitt's quality inspection process. Being aerospace parts, and particularly those for military customers, parts must be inspected by the quality team. This ensures the parts' performance and airworthiness and provides the necessary documentation of inspection. A lengthy process that occurs on parts both received into the warehouse and on finished components from the warehouse, the initial simulation showed that three dedicated part inspectors were insufficient.

Through CLASS simulations, Meggitt established how many people were truly required based on base assumptions on the proportion of parts requiring inspection and the process times. This included several batches of parts with each requiring different levels of inspection – from 100% parts inspect to 20%. During the model build process, this was identified as a key assumption and further analysis was undertaken by Meggitt to determine the actual inspection requirement and which staff were needed to do it.

### Testing Loading Bays

The loading bays showed minimal congestion that would potentially be absorbed by available yard parking. In one simulation, Meggitt looked at the additional capacity offered by adding more loading bays. The results showed that one additional bay would significantly reduce congestion, but adding two or three bays would offer diminishing returns. These discoveries greatly helped the team understand how to optimise their loading bays within a confined space.

### Tow Train Evaluation

The tow train concept was in use at other Meggitt sites, but was not a strategy implemented in the UK up to

that point. The question was about the train's capacity. The team needed to discover how many delivery runs it would need to make each day and how many trains would be needed to deliver the site's volume to and from the warehouse. In CLASS, simulations showed that a single six-pallet train was sufficient, but any less capacity (such as a four-pallet train) would require multiple on-site trains.

### Results

The project started in mid-December and ended in late March. Over that course of time, Meggitt learned about CLASS and began to run its own simulations – enabling the team to test scenarios and own the project over time. Working closely with the Meggitt team, Körber was able to present the output of the model to the board.

The results of the modelling gave the business the confidence it needed to move forward with the project and implement its design based on the proof points and discoveries uncovered through CLASS.

**“I would definitely recommend CLASS. The quality of the simulation movie has been the biggest asset to our project – something we didn't even know we wanted or needed – but it's been used so many times in meetings since, and really brings the plan to life.”**

Kalvin Evans, Project Lead  
Meggitt

After running the initial models for the new facility, Meggitt continues to use CLASS to better understand how the store's warehouse will service production cells. This includes receiving components and spare parts; delivery to lineside by tow trains, and distribution to customers. Meggitt plans to use CLASS after the facility's grand opening in 2021 to continue to validate and implement improvements.