Case Study

Rosie & Jim
Case Study

Automating packing lines within an existing footprint to facilitate increased production throughput and reduce the effort required to schedule and fulfil customer orders.

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Summary

- **Company**
  - Rosie & Jim

- **Status**
  - Existing SF Engineering customer over many years

- **Location**
  - Dublin, Ireland

- **Industry**
  - Gluten-free chicken products

- **Type of project**
  - Upgrading packing lines to improve manual processes

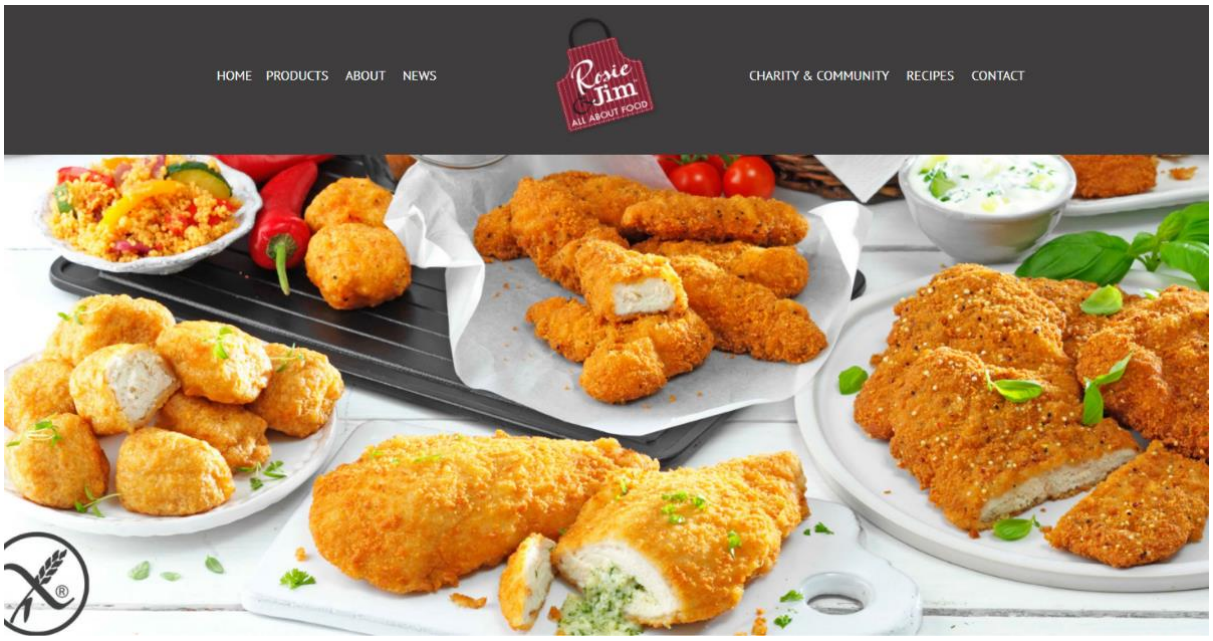
- **Installation**
  - Phase 1 July 2021, Phase 2 September 2021

- **Machines/equipment installed**
  - SF Engineering-designed conveyors, distribution systems, and workstations
  - Ishida checkweighers
  - Ceia metal detectors
  - Carsoe denester

- **Key results**
  - Significantly reduced manual handling and improved packing line efficiency, while also making processes easier and safer for operators.

Background

Rosie & Jim is a leading producer of gluten-free chicken products.



The company is a family-owned business that is proud of the nutritious and tasty products it produces. It uses high-quality ingredients, including premium-grade chicken fillets, with all the products in its range produced at its Dublin manufacturing facility.

The products in the Rosie & Jim range include:

- Retail chilled products (Chicken Kiev, Breaded Chicken Fillets, Breaded Chicken Goujons, Southern Fried Chicken Fillets, etc)
- Retail frozen products (Breaded Chicken Fillets, Battered Chicken Chunks, Southern Fired Chicken Fillets, etc)
- Butchers and catering products (Garlic Chicken Kiev, Chicken Cordon Bleu, Mexican Chicken Wrap, Chicken Drumsticks, etc)

It is a company that prioritises innovation and continuous improvement both in its product offering and the processes in its production facility.

Patricia Molloy, Sales and Marketing Manager at SF Engineering, said:

> *"The project that is the subject of this case study came about because of success – the huge success of Rosie & Jim's business. The growth in Rosie & Jim over the past two-to-three years has been phenomenal. The company's vision for the future and its expansion plans are also very exciting.*

“The relationship we have with Rosie & Jim is very important to us at SF Engineering, and we have been honoured to partner with them on multiple projects over a great number of years.

“We were delighted again to get the opportunity to work with them on this project, and we look forward to building on that relationship and supporting Rosie & Jim in the future.”

Project Objectives

The team at Rosie & Jim wanted to improve processes in a number of specific areas in its production facility:

- Improved staff retention through enhanced employee morale and job satisfaction
- Automate as many processes as possible
- Increase production throughput
- Reduce batch changeover times
- Improve the efficiency of existing equipment on site
- Improve workflows and processes

We also had to deliver our upgraded production line solution within an existing footprint, extending and enhancing existing machines and equipment while also integrating new equipment.

What We Did

There were two main requirements in this project to meet the client's objectives:

1. Feeding product from the intake into the production process
2. Upgrading the packing area

During the design phase of the project, our design team consulted with Rosie & Jim to ensure the solution met the requirements of the production line while also improving efficiency and the working conditions of operators.

Feeding Product from the Intake into the Production Process

The previous process for product intake into the factory was manual, labour intensive, and uncomfortable for operators as it involved manually lifting 10kg bags out of dolavs. This process necessitated a lot of bending down to reach the bags, making it inefficient as well as creating a health risk for operators.

The product was then derobed before being manually placed onto an X-ray system and then onto the next stages of production. Overall, the infeed system to get the product into production was inefficient.

Our Solution

The solution we designed and installed includes a dolav tipper that empties the entire contents of each dolav onto a purpose-built conveyor.

The conveyor uses a high-quality belt and is designed to optimise cleaning processes. It also automatically stops and starts to ensure a continuous and steady feed to the operator for derobing.

The process allows full bins to be added to the bin tipper during the derobing process. This ensures there is a continuous feed of bags to work on. Once the product is derobed, the operator tips them onto an elevator conveyor designed and built by SF Engineering. This conveyor meters the product to an X-ray system, ensuring an even product presentation and minimising false rejects.

Sean McLoughlin is the Continuous Improvement Manager at Rosie & Jim. He described the new product intake process as transformative:

> *"We're at a stage where it used to take half an hour to break down a pallet, but it now takes 15 minutes, so there is a time saving and a labour saving.*
>
> *"However, the key element for us was to make the job easier for the staff rather than focusing on savings. Of course, savings are always a bonus, but making our staff as comfortable in work as they can be is a key requirement for us at Rosie & Jim."*

Upgrading the Packing Area

The packing area at Rosie & Jim was initially designed as a process that packed bagged products into cartons. The business has grown considerably over time with more customers coming on board.

With this growing customer demand, throughput increased, and the packing requirements changed to include trays and bags for retail customers, and boxes for food service customers. This resulted in the packing area becoming congested with equipment and operators moving between lines depending on the product runs required.

In designing the new packing area, consideration needed to be given to the following elements:

- Changeover times between production runs
- Weight and count priority tray packing line
- Food service packing line
- Bagging line
- Empty carton feed system
- End-of-line carton sealing, check weighing, labelling, and palletising

There were a number of additional requirements that we had to consider as well. Specifically, the new lines had to:

- Be configured to improve the efficiency of the existing equipment, including two existing Ishida multihead weighers and GIC Bagmakers
- Make efficient use of the limited space that was available
- Provide ergonomically designed workstations to improve employee job satisfaction

Case Distribution System

Previously, operators would manually erect cartons in what was a time-consuming, inefficient, and labour-intensive process. To improve and automate the preparation of cartons, Rosie & Jim invested in a case erector system that automatically erects the boxes ready for packing.

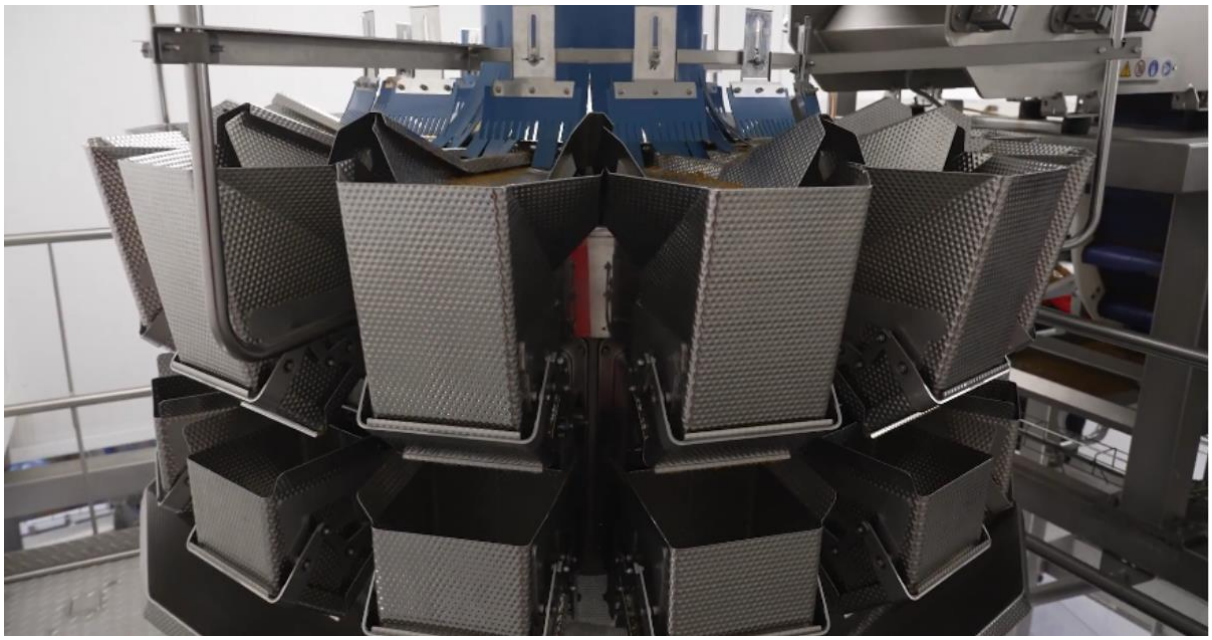
At SF Engineering, we then designed and integrated a case distribution system with the case erector and the packing lines.

With this distribution system, the cases come out of the case erector and onto a distribution conveyor. The conveyor can be controlled to take the empty cases to either the food service line or the bagging line, ready for operators to fill. This solution ensures operators always have cartons available for filling.

Tray Packing Line

SF Engineering designed the solution for the tray packing line to maximise the use of two existing Ishida multihead weighers. The tray packing line was designed as the primary packing line, with surplus product delivered to the second multihead weigher on the bagging line. Alternatively, both lines can run as bagging lines depending on the production requirements.

This solution ensured the freezer could continuously run at maximum capacity, allowing Rosie & Jim to reduce the production times needed to run its multiple product lines.



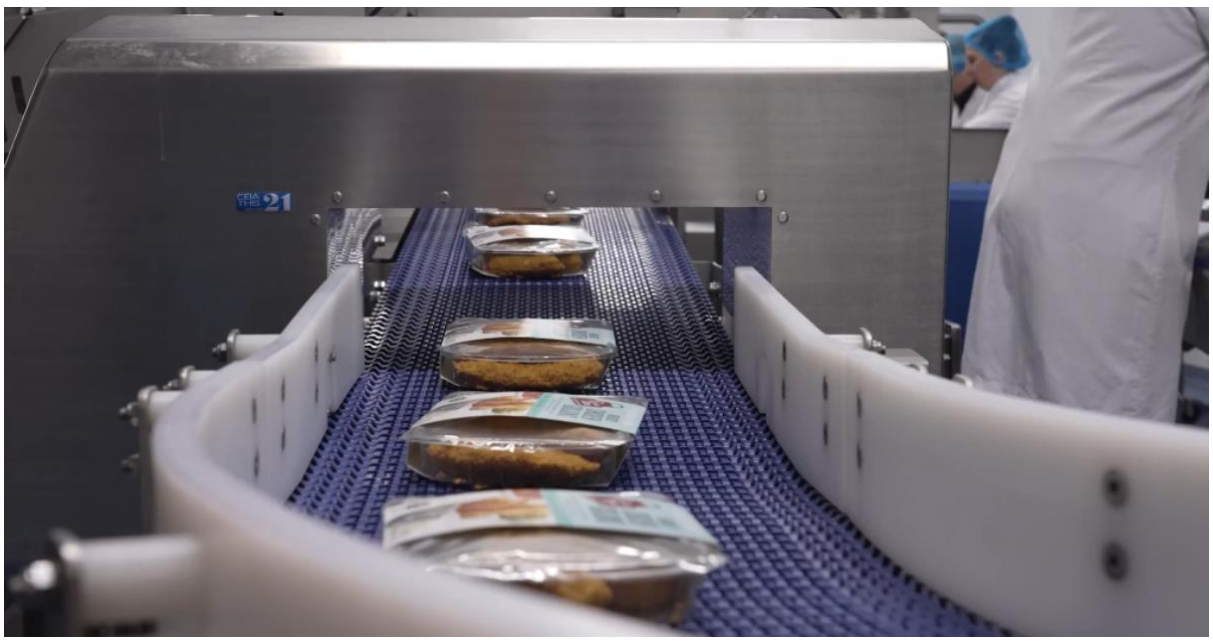
On the new tray packing line, one of the Ishida multihead weighers drops the target weights onto a flighted conveyor that indexes the product into a distribution system located in the retail packing area.

Our team also installed a new buffer denester system on the tray packing line, eliminating the need for an operator while also reducing the risk of tray seal contamination.

The denester ensures there are empty trays available for the retail product as it is metered through the SF Engineering-designed distribution system.

From here, the product can be delivered either onto a pace packing conveyor for manual tray filling or directly into retail trays at a rate to suit the downstream equipment. The filled trays then move along a chain and peg indexing conveyor to present the product to an existing traysealer where the trays are sealed.

The retail trays pass through a market leading Ceia multi-spectrum metal detector system, before going to the packing station where operators pack the trays into cartons.



The filled cartons are then placed onto a conveyor that takes the cartons to a case taper and an Ishida carton checkweigher. Data from the checkweigher is exported to the factory's ERP system which then creates the label information. This information is laser jet printed onto the carton before it is delivered to the operator for palletisation. Cartons that are outside the weight tolerance are rejected prior to the label application.

Food Service Line

The food service line uses an existing conveyor system to get product to the new packing line designed by SF Engineering. This is a three-tier conveyor packing solution that presents operators with empty boxes and product, allowing them to pack the boxes efficiently. When the boxes are filled, they can be pushed onto a full box takeaway conveyor to be transferred to the downstream equipment for sealing, checkweighing, and labelling.

The design of the packing station ensures operators have easy access to products, packing materials, and the full box takeaway. This has removed any wasted operator movement and creates a reliable and efficient process.

A key consideration in all SF Engineering processing solutions is to remove time wasted on the unnecessary movement of people, product, and equipment. Ergonomically designed packing solutions reduce the need for operators to bend, overreach, and lift materials. This, in turn, improves packing efficiency on lines and reduces musculoskeletal injuries to operators.

Bag Packing

This project also involved the integration of a new end-of-line carton packing process after the two existing Ishida multihead weighers and a GIC bagging line, both of which were previously supplied by SF Engineering.

The new system includes an Ishida Bag Checkweigher that individually checks the weight of each bag to ensure they are within the required tolerance range. The over and under weights are rejected and the conforming products are again delivered to a new three-tier packing station. By taking into account the same packing station design considerations, we custom-designed the new equipment to cater to the specific packaging process and products used on this line.

The new packing station improved line efficiency and reduced excessive operator movement. The packing station format, with the end-of-line case taper, checkweigher, and label printer, also reduces the amount of training required for operators, maintenance processes, and line setup processes. This allows operators and line supervisors to run all lines based on staff availability and the production schedule.

Installation & Commissioning

The installation and commissioning process took place over two phases, both of which spanned two days over a weekend. This was to minimise disruption to the business, particularly in relation to the requirements of Rosie & Jim's customers.

A lot of preparation and planning by the Rosie & Jim team was also required, including the removal of walls and the opening up of the area where the new packing lines would be installed.

Sean McLoughlin of Rosie & Jim said:

> *"The installation process was worrying for us. It was something that we hadn't undertaken in quite a while, and there was a lot of build-up work required, including removing walls and opening up the floor to fit in this new solution.*
>
> *"Overall, it was a very positive experience for us. We learned a lot through it as well. Of course, no installation happens without its issues, but everything was resolved, and we are now in a very good place as far as equipment is concerned."*

The SF Engineering installation team looked after the mechanical and electrical installation of the new conveyors and equipment. The installation was completed on time, and we adhered to all food safety and health and safety requirements.

With the mechanical and electrical installation complete, the SF Engineering service team commissioned the new lines and equipment. We then provided training for the operators at Rosie & Jim on the new packing lines and processes.

Benefits and Results

Benefits of the New Lines and Processes

- ✓ Reduced labour requirement
- ✓ Increased output control
- ✓ Improved operator control
- ✓ Enhanced flexibility
- ✓ Improved working conditions
- ✓ Fast batch changeovers
- ✓ Optimised use of all equipment

The solution we developed and installed also allows for future expansion to accommodate evolving business needs. All the equipment that we used is best-in-class in terms of performance, reliability, and power consumption.

We design all our conveyors and lines to be as easy to clean as possible, with minimal water requirements. The health, safety, and working conditions of employees were also key considerations for every element of the new lines.

Results

- The working conditions of operators have been improved considerably, with more efficient, safer, and effective processes.
- The process to bring bags of product in dolavs into the factory, split them, and put them through the X-ray machine is now considerably faster, with less time wasted. The workstation is also ergonomically designed, and operator processes are much safer.
- Throughput on the tray filling and sealing part of the line doubled from 20 trays per minute to 40 and also reduced product giveaway.
- Fewer operators are required on all packing lines, while at the same time increasing throughput.
- In general, there is considerably less operator movement. Rather than operators moving product, trays, empty boxes, or full boxes, conveyors move everything through the line.
- Multiple tasks can now be performed at once with the various conveyors moving product, trays, and boxes as required. This wasn't possible previously.
- Batch and process changeovers now take less time, enhancing the efficiency of the lines and contributing to the increase in throughput.
- The entire solution was designed and developed within the existing footprint, so takes up no more space than the previously manual processes.
- The new lines were also designed with future capacity expansion in mind.

The Customer's Perspective

Sean McLoughlin said:

"Our previous processes at Rosie & Jim were fit for purpose when they were created, and they worked for 15-20 years. But our business has been growing – we are currently producing about 70 tonnes a week. We were at about 50 tonnes a week at the start of Covid. We have now reached capacity on the coating line, and we have plans for further expansion. However, the growth also meant our packing processes were no longer fit for purpose, making this project a priority.

"All the products that go through the three packing lines that SF Engineering upgraded are absolutely key to our business. The breading line that coats all the raw fillets in various flavours of crumbs and batters is the epitome of what Rosie & Jim is.

"The problem was our processes were very labour intensive. There was a high level of manual handling and double handling of products. Efficiency was a huge issue, and we have space restrictions also.

"Making the job easier and reducing the level of manual handling required by our staff was hugely important to us. For the loose products, for example, we used to pack on a round Lazy Susan table and manually handle the boxes across to the weighers. We also applied lids to boxes.

"Moving to a case erection system that automatically erects and distributes cases has reduced the amount of packaging that we use. It has also removed the requirement for manually making up boxes in advance, which has been huge.

"And then there are the lines that were put in by SF Engineering, with the end-of-line elements being a good example. Particularly the tapers and closing mechanisms on the boxes, as the operators no longer have to worry about making sure the lid is properly on the box. Once they push the filled box away, it gets carried down the line and is automatically closed and taped.

"One of the biggest wins that we took from this project was with our tray-packed products. Three days a week we used to set up a number of operators with loose goujons in large crates. The operators would then have to manually weigh into trays one by one to reach the 300-gram target, give or take the tolerance. We are now using our Ishida weighers and an automated method of filling trays. This has again transformed the way we do things in the packing area.

SF Engineering's involvement has been very beneficial. The new packing lines have instilled on the factory floor a level of calmness among the staff that has never been there. That's a big win for us too. Overall, we couldn't recommend SF Engineering enough. There is no requirement that hasn't been met. They are an absolutely great company to deal with."

Get in Touch

To find out more about this project or to speak to a member of our team about a new food production line solution that you are planning, please get in touch. We can also offer expert advice on how to make your food production processes more efficient and less costly, with a fast return on investment. Contact us today.

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