2025



ADVISORY I ENGINEERING I DESIGN

Packaging Solutions

www.beca.com



Where Precision meets Efficiency and Value.

Beca

Packaging is an art of precision and efficiency, enabling the right materials to reach the right place, in the right quantities, and in the right condition. It's about maintaining the correct sequence, at the optimal time, and at the best cost, using the most effective methods. **Packaging protects, preserves, and communicates value.**

WHETHER YOU AIM TO:

- ✔ **Improve efficiency**
- ✔ **Reduce manual handling**
- ✔ **Expand your product line**
- ✔ **Install a new line or relocate an existing line**
- ✔ **Minimise product damage**
- ✔ **Enhance safety**
- ✔ **Address environmental concerns**
- ✔ **Transition to sustainable energy**
- ✔ **Future-proof your operations**

No matter where you are in your **packaging operations, our solutions** are designed to meet your needs and exceed your expectations, adding value every step of the way.

Our Specialist team can deliver end-to-end packaging solutions.

With extensive experience in **specialist packaging operations** and expertise in advanced **computer simulation technology**, we design, troubleshoot, and optimise packaging lines for clients in the consumer foods, beverages, and other manufacturing sectors.

WHERE WE COME IN:

Detailed Line Studies:
Comprehensive analysis of your production lines to identify efficiencies and improvements.

Problem Area Identification:
Pinpointing and addressing operational bottlenecks and issues.

Rationalised Line Changeovers:
Streamlining changeover processes to minimise downtime and enhance productivity.

Equipment Selection, Specification, and Installation:
Guidance on choosing, specifying, and installing the right equipment for your needs.

Upskilling In-House Teams:
Latest packaging technologies, best practices, operational strategies to make sure your staff is well-equipped to handle current and future challenges.

Optimising Your Operations:
Tailored strategies to enhance overall operational efficiency and effectiveness.

Master Planning:
Comprehensive upgrade of packaging operations with a facility-wide focus.

Procurement of New Line:
Comprehensive guidance and services from planning to implementation. Our independence and experience enable us to make informed procurement decisions with a broad market perspective.










Modelling and Simulation.

OPTIMISING PACKAGING LINES FOR CLIENTS

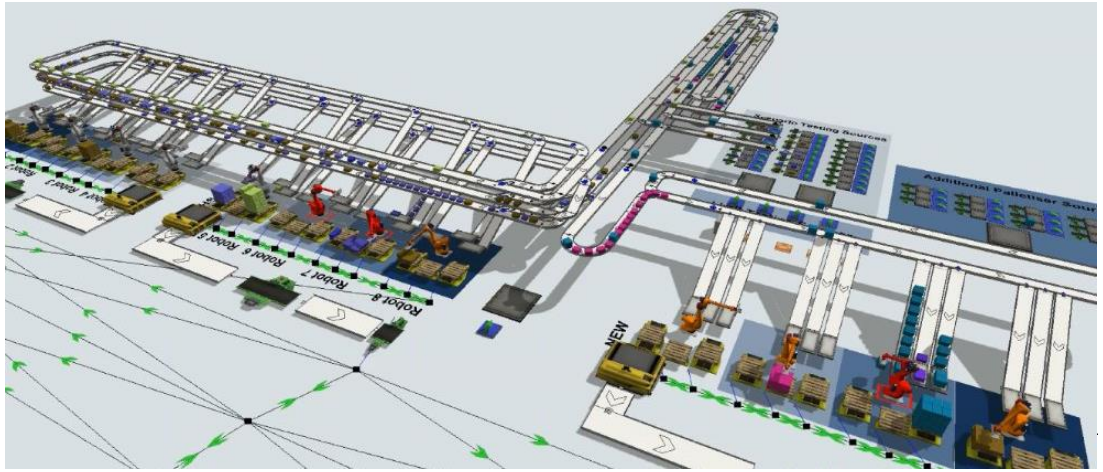
We assist clients in optimising their packaging lines by evaluating their current packaging capacity, as well as their manufacturing and storage capabilities. Our process includes reallocating volumes, reducing changeovers, and determining the ideal production quantities to balance inventory levels with Delivery In Full, On Time (DIFOT) requirements, while making sure the entire manufacturing process can realistically support these improvements.

We review operational levers such as shift patterns and overtime to find the right balance between OPEX and CAPEX, enabling your current assets to be fully optimised. In addition, we conduct sensitivity testing to quantify risks and avoid incorporating unnecessary extra capacity due to uncertainty.

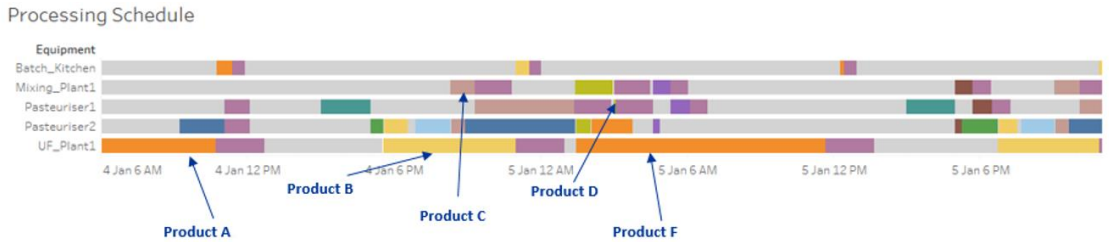
GETTING THE DETAILS RIGHT BY SIMULATING REAL SCENARIOS

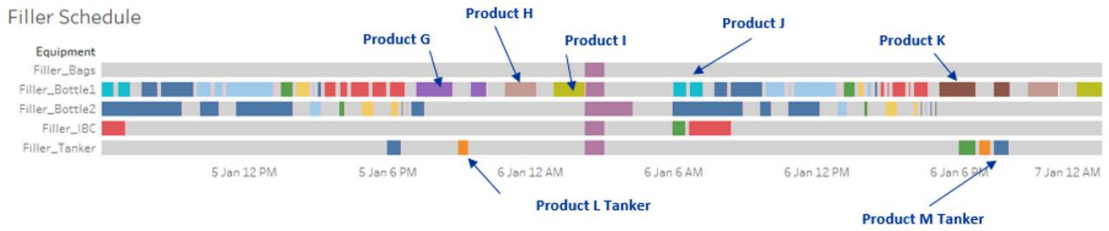
Once the optimal packaging line size has been determined, we assist you in operationally simulating your complex packaging systems to achieve maximum efficiency. By subjecting the system to realistic production throughput, beyond simple averages and peak requirements, we can observe how it behaves under real-world conditions, including your unique processes and nuances.

This approach allows us to identify potential bottlenecks and constraints at the design stage, before the equipment is commissioned.



3D dynamic simulation of automated packaging





Gantt chart illustrating typical modelling outputs, showing a holistic approach to simulation.

Optimising Packaging Operations Across Industries.

INDUSTRY	CLIENT	OUR ROLE	SOLUTION
Beverage	Suntory Oceania	Masterplan layouts / Tendering and award / Contract Formation / Contract Administration / Building Design	Development of layout for a greenfield site, incorporating three high-speed packaging lines and a keg line. These packaging lines are state of the art, featuring high levels of automation across sustainably focused formats. They feature a high degree of flexibility, enabling the efficient processing of a wide range of products.
Brewing	Lion	Modelling and Simulation	Comprehensive simulation of entire breweries to facilitate annual capital planning across their network, with packaging seamlessly integrated as a core component of the model.
Dairy	Friesland Campina	Masterplan layouts / Design Concepts / Procurement and Construction Management	The project encompasses the development of concept layouts for a greenfield site, featuring over 30 packaging lines. Additionally, tender documentation will be prepared for the relocation of more than 20 packaging lines. The tender design and evaluation will include numerous packaging machines, such as palletising systems for 16 packaging lines and AGV transportation to the warehouse.
Meat	Thomas Foods International	Concept Design / Tender Preparation and Contract Award / Implementation Support / Building Tender Design	Beca developed innovative packaging system concepts featuring carton erecting and lidding, a chilled and frozen carton ASRS systems for sorting cartons, a pallet ASRS for cold storage, integrated automatic labelling with vision inspection, and carton palletisers. Collaborating with the client and suppliers, Beca assisted in refining these designs to create a practical and effective solution.

Optimising Packaging Operations Across Industries.

INDUSTRY	CLIENT	OUR ROLE	SOLUTION
Consumer Foods	PepsiCo	Modelling and Simulation	A day-in-the-life discrete event simulation of the palletisation area was developed, featuring a complex circulation conveyor system. This simulation incorporates site-specific failure modes and was utilised to devise the optimal carton diversion strategy, ensuring effective integration of new palletisers with legacy systems.
Consumer Foods	Twinings	Line audit to review changeover times	Delivered recommendations to reduce changeover times on an existing packaging line, categorising solutions as quick wins, medium-term upgrades, and long-term strategies.
Consumer Foods	McCormick Foods	Masterplan layouts	Masterplan for a brownfield site integrating several packaging lines and processes, designed for phased implementation. This plan helped the Client visualise the site's expansion, effectively communicating the vision to stakeholders, while also ensuring the site is future-proofed.



Beca is one of Asia Pacific's largest independent advisory, design, and engineering consultancies. Over the past century, we have transformed from a family-owned business into one of the region's most progressive, client-centric professional services firms.

Our employee-ownership model underpins our commitment to building and sustaining long-term relationships with our clients. Importantly, as an independent organisation free from supplier affiliations, we can focus more effectively on our clients' specific needs.

Beca Industrial

With over 100 years of experience in delivering industrial and manufacturing projects across Australia, New Zealand and Southeast Asia, our Industrial team brings significant technical experience to help solve clients' problems. As a multi-disciplinary firm, we have specialist capability in **packaging engineering, simulation, sustainability, safety audits and site integration.**





Your Partner in Packaging