

Pet food production takes on a new level of automated technology

Cool Off — using the latest patented technology to supply Australian pet food ingredients to the world

Challenge

To automate the plate freezing process for more efficient pet food production.

Solutions

Integrated control and safety

- Allen-Bradley® GuardLogix® provides integrated control and safety
- Engineering time was reduced by using PowerFlex® 527 drives with safety over Ethernet
- Kinetix® Servo drives delivered advanced motion control capabilities

Patented design

- Cool Off together with VK Logic designed an automated plate freezing process, eliminating the requirement for manual handling

Results

Increased throughput

- The automated plate freezing system resulting in an increase in plate freezing capacity by 120 percent

Improved safety and efficiency

- Safety and efficiency parameter are improved by eliminating the requirement for manual handling of the freezer plates



The new automated plate freezing system improved throughput and reduced manual handling requirements.

Background

Pet owners are constantly assessing the many food choices available to feed their furry friends. Prepared pet foods are becoming an increasingly popular choice, offering a wide variety of food types and flavours while meeting nutritional requirements.

With a growing reputation for providing safe, consistent and nutritious pet food, the Australian pet food industry is valued at approximately 1.6 billion dollars with opportunities growing within both Australian and export markets.

Cool Off is the pet food raw material manufacturing division of Staughton Group, which is an Australian, family owned company with manufacturing facilities in Walget, New South Wales, St George in Queensland and with the head office and main manufacturing plant located in Howlong in southern NSW.

Staughton Group oversees the manufacture of bulk raw materials for the pet food industry as well as retail pet foods and supplements for domestic and export sales. Staughton Group also sources and processes wild game proteins through its recently acquired Wild Game Resources Australia.

Offering unique access to Australian raw materials for pet food manufacture, Cool Off delivers high quality products including: Lamb Mechanically De-boned Meat (MDM), plate frozen offals, boutique meat meals and natural dried treats – sourcing its red meat offal raw material from over 30 abattoirs across Australia, processing over 150 tonnes of raw material per day.

As market opportunities continued to grow, Cool Off designed innovative new technology to help meet this increasing consumer demand.

Automated plate freezing

Cool Off is a company at the forefront of technology and innovation. To help maintain a high quality product, the company developed a unique offal collection process that involves installation of a customised collection and chilling unit onsite at the abattoir. This enables Cool Off to control all aspects of quality from the onset, providing a dedicated focus on quality of the pet food products, with minimal abattoir labour input. This system is currently installed at over 30 Australian abattoirs.

Once the offal is processed, it is pumped into large plate freezers, with the capacity to hold 2000 kg of product, and frozen at -20 degrees Celsius. The product is then unloaded and palletised for delivery to pet food manufacturers. In the past this was a labour intensive process that required manual handling by operators. To increase throughput and limit manual handling requirements, Cool Off together with VK Logic designed a new automated plate freezing system. VK Logic has a longstanding relationship with Cool Off, resulting in

a detailed understanding of the plate freezing process. Justin Van Klaveren, managing director at VK Logic explained that in order to meet increasing customer supply contracts, Cool Off undertook some expansion work at the plant that included building works and new freezer panel rooms.

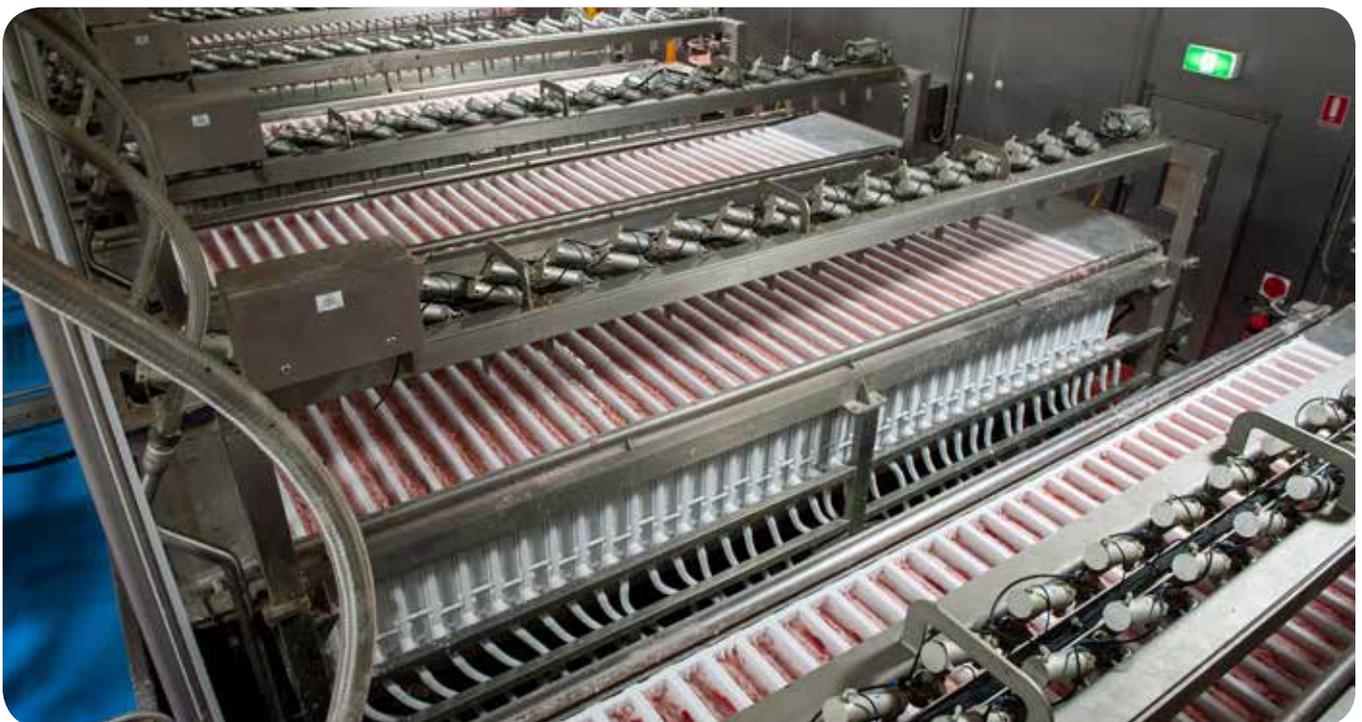
“There wasn’t a simple, automated unload process for the large plate freezers so together with Cool Off, we placed an arrangement of pneumatically actuated panels and built plate freezer apparatus to utilise the existing infrastructure to release each block one by one down the plate onto a common conveyor belt, eliminating the requirement for manual handling,” said Justin.

“Given that margins for pet food are not near margins for human consumption, the opportunity for automation becomes more and more important,” Justin added.

High performance architecture

Combining integrated control and safety, the Allen-Bradley® GuardLogix® was selected as the most appropriate choice for this application. The Rockwell Automation Integrated Architecture® system including PowerFlex® 527 drives with safety over Ethernet offers an innovative, modular design to support fast and easy installation and configuration. These compact drives also offer embedded EtherNet/IP™ communications and standard safety features.

The Allen-Bradley Kinetix® Servo drives provided advanced motion control for the system and the capability to standardise on a single communications



Cool Off's patented plate freezing technology was the product of intelligent engineering and problem solving.

network for easier commissioning, configuration and start up. FactoryTalk® View SE human machine interface (HMI) was used to monitor and control the plant. To help with remote assistance and maintenance, VK Logic has VPN access to the site.

“We saw an opportunity in terms of that single platform with safety over Ethernet. The PowerFlex drives provided an integrated solution with motion, drives and safety all on the one common platform. This helped reduce engineering time and ongoing maintenance requirements,” explained Justin.

Rockwell Automation Authorised Distributor, NHP Electrical Engineering (NHP), supported this project by identifying the most appropriate equipment to meet the application requirements. According to Jason Campbell, business development - Automation at NHP, “There’s no technology that rivals this new patented system. The solution allowed Cool Off to increase throughput, reduce downtime and redeploy operators that were doing manual labour.”

An integrated solution with motion, drives and safety all on the one common platform helped reduce engineering time and ongoing maintenance requirements.

Patented Innovation to meet consumer demand

Cool Off’s patented plate freezing technology was the product of intelligent engineering and problem solving – resulting in an increase in plate freezing capacity by 120 percent. The technology and innovation around the plate freezer design was developed together with VK Logic, a business with a growing reputation for ‘out of box’ thinking for large and small projects alike.

The plant is in operation 24 hours a day, seven days a week as there is significant demand for the product. With consumer demand continually increasing, Cool Off was recently awarded a government grant to double capacity of the plant.

Edward Staughton, managing director of Cool Off and Staughton Group, highlights the significant advantages the company enjoys over international and domestic competitors via its technology -

“The quality and freshness of red meat offal products collected from supplying abattoirs and delivered daily to Cool Off at Howlong is guaranteed via the unique chilling system installed at supplying abattoirs. This patented



The Rockwell Automation Integrated Architecture system offers an innovative, modular design to support fast and easy installation and configuration.

system was developed by Cool Off and VK Logic, using experience gained over 20 years of collecting offals from abattoirs located throughout Eastern Australia. The system ensures all product from abattoirs in Queensland, New South Wales, Victoria and South Australia can be delivered in any season over long distances and maintain its freshness.”

Edward has inspected many plate freezing systems throughout Europe and America and comments, “The development of our patented automated plate freezing system, in combination with the abattoir chilling system, has given the Cool Off production team a massive international competitive advantage in quality and processing efficiency. Three staff are able to fill, freeze, palletise and warehouse 50 tonnes (pallets) of product in an eight hour shift which, combined with freeze time of two and a half hours, ensures maximum freshness of all products. With the plate freezers being fully CIP (Cleaning in Place), cleaning time is minimal. I have seen nothing internationally that compares with this system.”

“Cool Off is highly appreciative of the combined efforts of VK Logic and Rockwell Automation in enabling the development, and now the “bedded down” operation, of technologies which are unmatched by international competitors. Cool Off looks forward to working with both these innovative and progressive companies to roll out further R&D projects that currently sit in the company’s pipe-line,” concludes Staughton.



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