

# FOOD INNOVATORS

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2018

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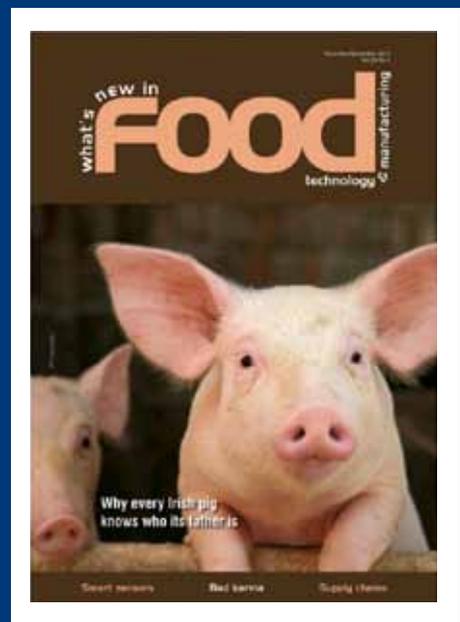
June 2018

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**FOOD**  
technology & manufacturing

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# FOOD INNOVATORS

2018

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# Why Your Product's Labelling Matters More Than You Think

**Driven by impulse, consumers often make purchasing decisions based on a product's aesthetic appearance — the colour and shape of the packaging — making label design a key competitive advantage in food manufacturing.**

The way people shop has changed over the years. Today's shopper is less patient and increasingly time-poor, so you generally have one opportunity to capture their attention and influence their buying decisions. Brand identity and the need to engage the consumer, build an emotional connection, and develop brand loyalty have therefore never been more important.

But brand dominance outside the store no longer guarantees that you'll get sales in-store. When it comes to making purchases, research shows that more than 60 percent of brand decisions are made after the shopper has entered the store. What's more, it then only takes two and a half seconds to make a purchasing decision, with the consumer only reading an average of seven words from the product packaging in an entire shopping trip.

## **Brand package design matters**

These instinctive product purchases, driven by impulse, show that people are not only buying products based on mere brand recognition, but also on the colour and shape of the product's packaging. In a 2014 'Packaging Matters' study, more than 65 percent of new customers purchased a product for the first time because of a product's packaging, while 55 percent of repeat customers bought a product again because of the favourable interactions they had with the packaging.

A product's label is therefore a key driver and influencer of a consumer's purchase decision. As an important brand investment, effective product labels should emphasise your brand's DNA while evoking a memorable, emotional response — and all within 2.5 seconds! Product labels that encapsulate these

key design characteristics tend to have the most successful shelf impact.

Consider Tropicana, which invested over \$35M into a fateful advertising campaign to promote their new packaging but found increasing dissatisfaction from consumers with the new design not long after its release. Within two months, sales had dropped by more than 20 percent, ensuring a \$30M loss for the company and demonstrating the importance of package design as the primary purchasing influencer with significant impact on an organisation's success and failure.

So, when your average Australian supermarket carries more than 40,000 different products, each one vying for the customer's attention, how do you ensure that yours cuts through the noise and stands out from the rest?



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As providers of tried and true complete labelling solutions for 50 years, we reveal three ways that high quality labelling can engage your target customer and build greater loyalty.

### 1. Bring your brand's DNA to life

A brand's DNA is made up of the core values and beliefs that capture who you are as a brand, what your product is and what your brand stands for — in other words, your identity. The product label should be a cohesive part of this identity and accurately represent your brand's story. It can bring your brand's DNA to life through colour, label face stock (the top layer of the label) and embellishments.

When selecting your label face stock and embellishments, reflect on your brand's primary characteristics and personality. Does the product offer environmental awareness, which can be represented through a biodegradable face stock? If luxury is a key brand characteristic, then this can be expressed through foiling embellishment. Or if simplic-

ity is the goal, achieve this by using a clear face stock.

Whether you opt for premium-labelling face stocks or embellishments from cold foiling (designed to deliver high quality and cost-effective metallic printing effects), two-side printing to UV Flexo and UV lamination, the labels that stand out on a crowded shelf and get your brand noticed will be those that instantly communicate your brand's DNA to the consumer.

### 2. Use colours to evoke an emotion

Colour can be a crucially important aspect to your product and brand, creating a consumer connection and helping your product stand out in the marketplace. With consumers taking an average of 90 seconds to make a subconscious purchasing judgement and 85 percent attributing colour as the determining factor when purchasing a product, the colours used on your product label play a key role in affecting consumer emotions.

Consumers act when a brand makes them feel something so the colours you choose for your label should project a deliberate subconscious message to attract your target audience and prompt them to choose your product.

When 60 percent of the product's first impressions are based on label colour, can you afford to package your product without placing enough focus on the label's colour palette, which may be saying more than you first thought?

### 3. Maintain consistency to differentiate your brand

Ensuring a consistency of tone, colours and graphics on your labels and across your product branding is critical in terms of building brand credibility and loyalty among consumers. Consistently maintaining these

elements of your brand's identity can eventually be the iconic differentiation that sets your brand apart from the rest.

When you see a red and white swirl, you instantly think of Coca-Cola. When you see the colour purple, you automatically associate it with Cadbury. And this is the power of branding consistency, particularly when applied to your product packaging.

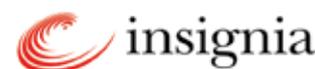
When you engage an experienced team of graphic designers to work directly with you on label colour and die recommendations, as well as label design and layout, then certified printers throughout the label-making process, you'll produce a label that creates a lasting impression on the shelf and in the hearts and minds of your customer.

### Label design as an industry influencer

Knowing that it takes only seven seconds on average to make a great first impression, packaging design and, in particular, product labelling provides a last chance to influence the consumer's purchasing decision when in-store.

Labels are key because they help drive the impulse purchase when good label design meets brand differentiation, when effective colour choice is used to create emotional connections, and by ensuring your product label is a cohesive part of your brand identity and DNA. Because when it comes to consumer tastes, looks really do matter.

Discover how insignia's unique labelling solutions can bring your brand to life and help your products stand out by visiting our website at [www.insignia.com.au/labelling](http://www.insignia.com.au/labelling).



insignia Pty Ltd  
[www.insignia.com.au](http://www.insignia.com.au)



# Green machines — achieving sustainability through innovative manufacturing

**The challenge in green manufacturing is reducing waste and pollution while finding ways to improve equipment design to see higher production efficiencies both in the equipment and the manufacturing process.**

With the world's population projected to reach 9.8 billion by 2050, the demand for food products has never been higher. Growing population levels and consumer demand for a more diverse range of products has also seen pollution and waste levels increase during the food manufacturing process. This provides a number of challenges for food manufacturers, including the adoption of more efficient and sustainable production methods to meet legislative changes around climate change, or to suit company culture/ethics.

Reducing carbon emissions is driving Heat and Control's commitment to green manufacturing, with our R&D teams constantly

looking at ways to create innovative solutions around water and energy reduction technology, waste treatment/reductions and reclaiming or reusing material to be environmentally friendly.

"This investment into green manufacturing technologies is something we have long prided ourselves on, and we are continuously looking for ways to develop new processes and enhance the existing methods of use," said Jim Strang, CEO – Heat and Control Asia Pacific and Europe.

"When we design our equipment, sustainability is front of mind. We not only ask ourselves how we can increase yield and ef-

ficiencies through automation for our customers, but also how we can reduce emissions and waste," said Mr Strang.

## **Energy savings and pollution reduction**

Many of our snack systems are now complemented with energy saving and pollution control systems, with Heat and Control developing a number of heat exchangers that combine the incineration of fryer exhaust pollutants with high-efficiency oil heating to help processors meet emission control regulations.

The KleenHeat® pollution control heat exchanger incinerates and removes virtually all



Heat and Control's E-FLO system

odours, oil and other particulates from fryer stack exhaust that would normally pollute the air and area around your plant. Our latest graduated density oil heating tube bundle provides 10% greater thermal efficiency than existing models, and is fully compliant with US, EC, and Australian regulations.

Designing innovative ways to reuse previously exhausted waste gases can increase production efficiency, save energy costs while reducing carbon emissions. The Heat and Control heat exchanger with combustion air pre-heater (and Booster Heater) can preheat cooking oil to boost fryer production up to 11–15% with no extra fuel consumption.

### Managing oil use

Frying oil can be an expensive part of food processing and any steps the processor can



Heat and Control's Oil Sweep System

use to reduce loss or wastage of oil can only result in greater business profitability. Oil recovery during production not only reduces energy usage, but also sees higher yields through cost savings. Where cooking oil is used during production of the finished food product, we have sought solutions to increase the oil life.

The Oil Sweep System, is where fryer oil used during French Fry production is recovered through a bank of cyclones and returned to the fryer oil recovery system. Solid fines are removed and the reusable oil is transferred by a pump back into the frying system.

Using a heat exchanger can manage the use of oil, with low oil volume promoting fast oil turnover and inhibiting the formation of free fatty acids. Rapid, uniform heat transfer allows your fryer to respond quicker to changes in product load, and protects oil quality by maintaining a low oil film temperature.

### Water conservation

Where water is used for product or equipment cleaning purposes, we have increased the use of recycled water. High levels of water usage can be costly for food manufacturers, so Heat and Control has developed a Water Cleanup System (WCS) for the slice washing system, which reduces fresh water usage up to 50% over conventional slice washing systems. Water Cleanup System cleans and reuses wash water, and concentrates starch and fines for more efficient removal and reduces sewer loading and the burden on a starch recovery system.

Heat and Control has also developed an oil mist eliminator that removes oil mist from fryer exhaust without water or high-horsepower fans and a heat recovery system which recovers normally lost heat from the fryer exhaust stack. This system condenses otherwise wasted steam to make hot water for blanching, sanitation, or even building heat.

Heat and Control offers four standard sizes of Stack Heat Recovery Units, and can also tailor design an application to your needs. Absorption chiller technology is becoming more common in hotter areas for building air conditioning and our SHRS acts as an ideal heat source.

In potato production, a necessary but costly part of the process is the need to blanch potatoes before cooking. The Heat and Control E-FLO™ system uses Pulse Electric Field Processing (PEF) technology to perforate the cell walls of the potato creating micro holes that allow asparagine and reducing sugars to be washed out of the potato in a cold water wash. The tissue of the potato becomes more permeable, which can eliminate or reduce the need to blanch the product before cooking. E-FLO can also increase yield which reduces energy used to produce a pound of finished product.

All these innovations allow our customers to reduce their pollution and waste levels while increasing operational cost savings through improved manufacturing design. Reducing the environmental impacts of processing can lower energy use and overall costs, while providing food manufacturers with innovative technology that will provide a significant return on investment in the years to come.

For more information on how Heat and Control can assist you with green manufacturing solutions, please visit our website at [www.heatandcontrol.com](http://www.heatandcontrol.com) or email [info@heatandcontrol.com](mailto:info@heatandcontrol.com).



Heat and Control Pty Ltd  
[www.heatandcontrol.com](http://www.heatandcontrol.com)



# Understanding the intricacies of sensitive applications

**Jason Sutton, Area Sales Manager at SMC Australia/New Zealand, offers important pointers for manufacturers and OEMs to consider when selecting the right automation supplier for the job. Beyond being a supplier, Jason notes the importance of looking for a partner — a reliable and flexible supplier who can walk the long road with you.**

Selecting the most suitable products for sensitive applications such as wet areas, is vital to the smooth-running of an application to ensure improved efficiencies and reduced downtime. Today, many dairy and food producers are making use of thinner plastics and as such, automation components need to be able to handle the intricacies of such materials.

"We have come across more and more dairy packaging machines which make use of thinner plastics and here, not just any brand can be spec'd. Wetter environments too require specific components to do the job and to ensure a long service life," Jason notes.

There are many important factors to consider when automating an application such as this, Jason elaborates on these:

- **More splash**

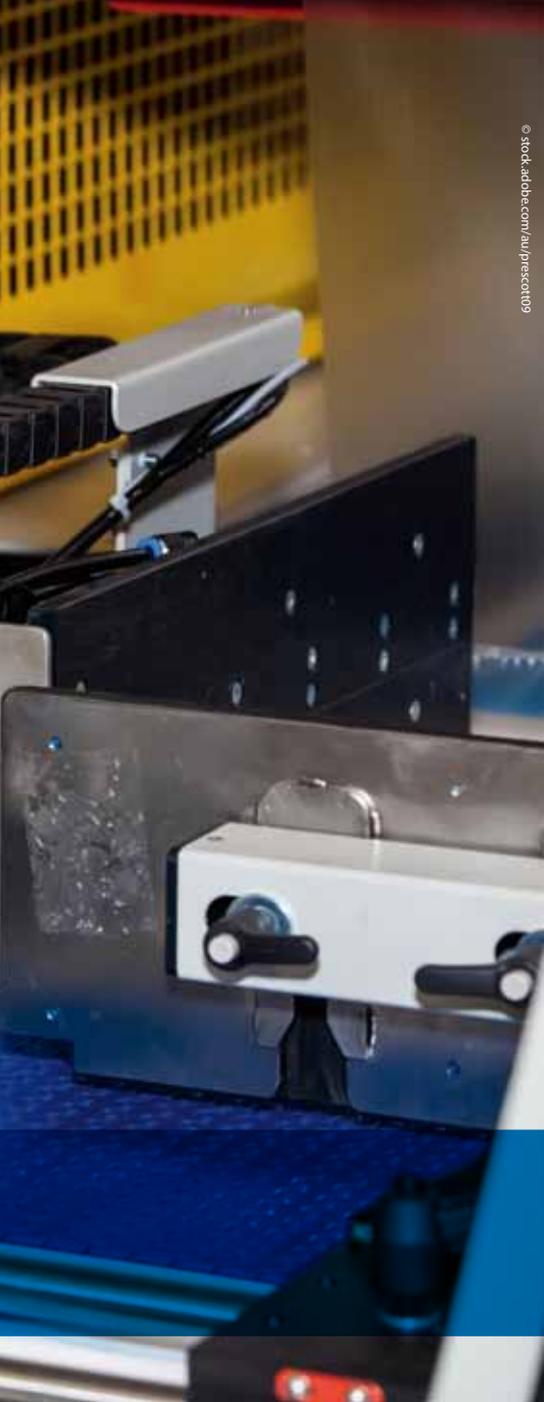
Jason notes that the use of thinner materials/bottles can result in more frequent splash due to the decrease in material strength.

- **IP rating**

"Environments such as these adhere to stringent health and safety requirements and as such, an IP67 rating is required when selecting your products."

- **Price consideration**

After establishing a relationship, a customer will find that customer support should be top of their supplier's priority list. "In understanding the scope and target price, a supplier will understand the intricacies of the application and will walk the journey with you to find the best possible solution. The consideration



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CG5 stainless-steel cylinder



SY5000 Manifold rated IP69K for wet environments.

between selecting a full stainless-steel actuator needs to be balanced against using a standard cylinder with stainless-steel inclusions to limit corrosion. The application, occurrence and severity of the splash or wash-down needs to be considered and an SMC Sales Engineer will be able to guide you through this," Jason continues.

### • The right products for the right job

Products may be required to withstand splash zones and wash down. A simple special can be requested to ensure that a standard CP96 ISO cylinder is supplied such that those components likely to corrode are replaced with stainless steel — XC68 and XC7 depending on the level of wash down. "SMC

prides itself on simple specials — simple modifications made to standard products to give your application that desired edge."

A popular choice, the CG5 stainless-steel cylinder uses a special scraper and offers a different rod seal material so that fluid can be wiped off before retracting. "As the norm, when the cylinder retracts some fluid will be drawn into the actuator, the special wiper as standard on the CG5 limits the fluid transmission," says Jason. "Seals on the CG5 cylinder are replaceable so the life cycle of the cylinder is extended."

An IP67 valve bank paired with the modular **EX600 serial interface** is recommended to withstand full wash-down and is expandable as a flexible offering. In addition, a diverter is able to divert the sequencing of the machine to increase the speed. SMC carries a large stockholding of the EX range which is available within 24 hours delivery.

"High speed operation enables diversion of bottles so that a machine can run more than one bottle on one line. Here, the diverter will sort it to size. **Electric drives such as that of the LEJ** from SMC are ideal for precision and offer a stainless-steel dust seal band as a splash guard."

Jason concludes by noting that like with any automation that requires the use of compressed air, clean and properly prepared air is vital in environments such as this. "SMC offers air preparation equipment for all environments and a host of applications."

*SMC Corporation are the world leaders in pneumatic technology and are experts in automation control. Formed in Japan in 1959, the company now offers over 12,000 basic products with 700,000 variants. The company employs over 22 000 people worldwide and is situated in over 80 countries. SMC is the world's leading pneumatics provider and has been voted for three consecutive years as one of the most innovative global companies by leading business magazine, Forbes.*

Website: [www.smcanz.com](http://www.smcanz.com)

Watch: LEJ – electric actuator animation

EX 600 serial interface animation

For sales enquiries please contact: [AUsales@smcanz.com](mailto:AUsales@smcanz.com) or [NZsales@smcanz.com](mailto:NZsales@smcanz.com)





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# Global food leader begins the journey to the Connected Enterprise

Converging IT and OT to align multiple processes, people and geographies for greater productivity and sustainability.

When a noted and iconic food and beverage company with a global reputation of being a trusted producer of delicious foods puts its trust in Rockwell Automation, then there's every chance that this is a good recipe for success.

The challenges experienced with information sharing over a number of manufacturing sites all around the world would require an innovative solution to align multiple processes, people and geographies — laying the foundations for their journey towards a Connected Enterprise.

Given the size of the organisation, converging the plant floor operational technology with the office layer IT infrastructure globally was not a small undertaking but it was certainly a very important one to meet growing production and business goals.

Smart manufacturing drives productivity and profitability. It requires highly connected plants so devices and processes can be continually monitored and optimised.

Through the Connected Enterprise, Rockwell Automation helps food and beverage manufacturers offer a more agile response to changing manufacturing and consumer demands. The company works with customers to help them converge plant-level and enterprise networks, and securely connects people, processes and technologies.

## Digital manufacturing

Leveraging data from the Industrial Internet of Things is the basis of a Connected Enterprise approach. "It was important for us to gain an understanding of the existing IT layer and applications as well as considering the future roadmap and requirements," explained Sean Doherty, Food & Beverage account manager, Rockwell Automation.

"In the first instance, it was vital to create a backup of the control layer of the plant so if there were any issues, the disaster recovery would seamlessly take place. The IDC provides a complete backup of the control system layer using FactoryTalk® AssetCentre and was built offsite in our facility in Auckland," he added.

The majority of the commissioning was performed remotely and was a seamless process. The engineers were onsite for a week but once it was connected to the plant's network, the remote support centre did the rest of the commissioning process remotely.

## Combined IT and OT support

Rockwell Automation was responsible for delivering the complete solution, converging IT and OT to help reduce downtime through remote monitoring. "This provided several advantages to the customer as they were able to benefit from our expertise in cyber security and patching and also from the fact that we have a greater understanding of the operational environment than a typical IT provider — providing a complete solution, combining IT and OT technical support in the same number rather than having to bounce between providers and thus getting operations back into production more quickly," explained Doherty.

"As a result of the service level agreement in place, the processes at the plant are monitored remotely and each filter or alarm is responded to every 10 minutes, with the average response time being only four minutes. In actual fact, every 2 minutes there's a 'heartbeat' sent to the technical support team in Melbourne which then goes to the support team in UK, then US and then back through Melbourne. This means that they are supported end to end with any re-

quired patching supported remotely," he said.

To increase manufacturing uptime at the plant, the customer invested in an Industrial Data Center (IDC) from Rockwell Automation. The IDC is a pre-engineered solution providing the hardware required to run multiple operating systems and multiple applications from virtualised servers. The Rockwell Automation IDC provides industry-leading technology from partners including Cisco, Panduit, EMC<sup>2</sup> and VMWare. It delivers high availability and fault tolerance, while reducing server footprint.

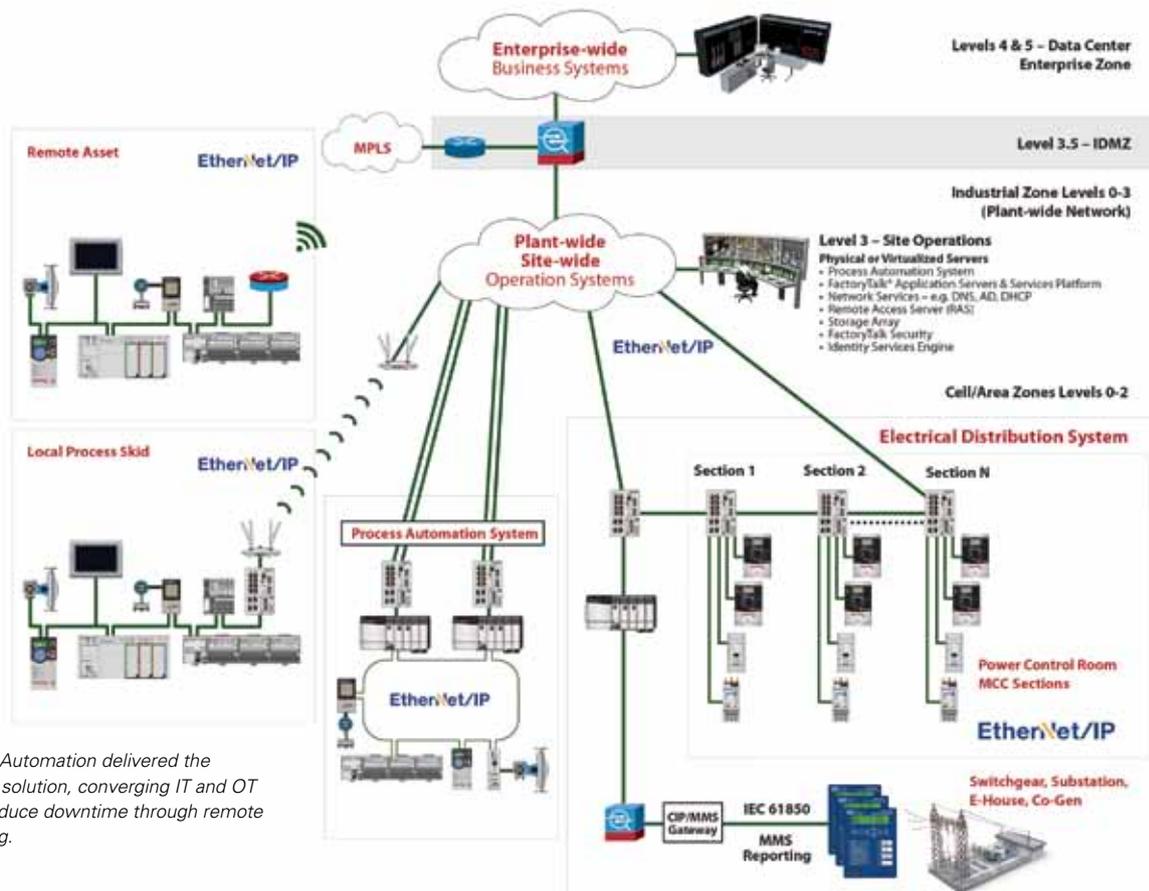
The IDC is a key component for the Connected Enterprise vision. It provides the capability to bring data from the plant floor and monitor performance for local strategies.

## Data visibility

Peace of mind came from knowing that the Rockwell Automation remote control centre was responsible for proactively monitoring the plant, while complete remote access was also provided from both the plant and from the corporate network, offering real-time data visibility.

"This is the first step towards establishing a Connected Enterprise at the plant. The next stage of the project will establish the ability to gain process improvement through the whole organisation by providing the capability for both corporate and engineering to create reports based on real-time information from the control system," said Doherty.

A key goal of this project was to develop a roadmap that addresses all aspects of the operation, while also preparing for technology advances and meeting operational and corporate objectives such as reduced downtime and improved productivity.



Rockwell Automation delivered the complete solution, converging IT and OT to help reduce downtime through remote monitoring.

## Challenges

- To help begin the Customer journey to a Connected Enterprise by converging IT and OT to provide increased visibility and remote monitoring

## Solutions

### Consulting services

- To identify existing IT layer and applications and consider future roadmap and requirements

### Service and support agreement

- Remote monitoring of processes at the plant with alarms being responded to within 10 minutes

## Industrial Data Center

- Increases uptime by running multiple operating systems and applications from virtualized servers

## Results

### Risk management and cost savings

- The cloud manages virus protection and cyber security, reducing risk and costs involved with managing onsite

### Smart manufacturing

- New system provides improved connectivity and visibility



The Industrial Data Center houses all of your applications in an easily managed and supported environment.

## Meeting global performance and environmental strategies

The icing on the cake was the reduction of greenhouse gas emissions, energy and water usage, and waste. By analysing data the customer is now able to drill down and identify areas that could be improved to help meet these objectives. The new solution also helps with the

move towards a paperless environment, with information being stored in the cloud and IDC.

The Connected Enterprise lays the foundation for seamless connectivity and greater collaboration among the many people, processes and technologies that impact product safety and quality. Additionally the digitisation of your operations removes paperwork from the plant floor reducing complexity and compliance costs. Smart operations are connected operations.

The ability to access relevant, real-time and role-based information can enable more informed decision-making at every level and create nearly endless opportunities for manufacturers to improve processes. Additionally, advances in equipment, control systems and information systems can help establish more flexible and more responsive operations.

The benefits of smart manufacturing extend far beyond operational improvements. A secure

network infrastructure, greater connectivity and access to actionable information also create opportunities to enhance quality, food safety and worker safety.

“Alongside new technology, the process is about creating a culture of continuous improvement. The Connected Enterprise promotes seamless collaboration and integration enabling the power of real-time data to help make better, more profitable business decisions,” concluded Doherty.

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**Rockwell Automation**

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Rockwell Automation Australia  
For further information please click here

# Belt up! Conveyor cleaning technology just leapt forward

BioSteam, a Queensland based and Australian owned business, has been supplying commercial and industrial mobile steam cleaning systems for over 15 years. With a collective 50 years of experience BioSteam has supplied systems across Australasia.

Nestlé, GWF, Goodman Fielder, Arnott's, Qantas are just some of the clients benefitting from the power of vapour steam cleaning.

3 Phase steam and vacuum systems are used for general cleaning duties around a facility. From walls, floors and benches as well as idle rollers and general infrastructure, motor cleaning and prover sanitation.

"We recently cleaned an industrial exhaust canopy that was black as your boot. The last time it was cleaned, they had to remove it and send it out and then reinstall the 6 m long hood. This was 4 days in downtime. Our equipment did the job in situ in 15 man hours using less than 200 litres of water and produced a waste stream of 50 litres. I don't think that can be beaten," explained Neil Hodgkinson, Founder and MD of BioSteam.

BioSteam supply a diverse range of industries, from defrosting freezer floors to clean-

ing air tables to cleaning wire to sanitation and infection control, the company has seen it all.

Now, with the addition of the KHD range of automated conveyor belt cleaning systems, designed and manufactured in the UK, they can offer complete turnkey solutions for numerous conveyor belts within the food industry.

Using less than thirty litres of water per hour these truly innovative systems clean and sanitise in one process.

"We are delighted to have secured sole agency for Keith Handy Design (KHD) unique and proven systems," said Hodgkinson. "We can now offer our clients incredible benefits; from increasing product shelf life, to drastic time and labour savings, all in the most environmentally sound way possible," he enthused.

The KHD systems are mobile, portable and surprisingly effective. They are proven worldwide within dry cleaning environments such as bread, bakeries and biscuits, cakes and pastry environments where excess water can cause significant issues. Bimbo in

America recently installed over 100 of the Jet systems across their network.

"We were amazed and somewhat shocked how quick and simple the system was, our ATPs fell from over 7000 on the uncleaned belt to 24 within 3 rotations of the belt using less than 5 litres of water in 15 minutes, wow!

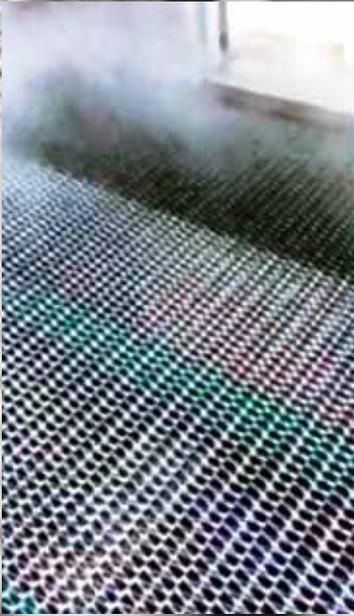
"We are now planning rollout across a number of sites, this is innovation at work," confirmed a production manager from a well-known food manufacturer.

There are basically 3 systems available, dependent on the belt type and production soil.

The recently released Jet 4 system offers incredible results, on Intralox, open type modular belts.

A robotic arm moves a "spinner" rotating at 200 rpm back and forward across a moving belt. The vapour steam, at less than 5% moisture then knocks debris from every nook and cranny, whilst the steam holds any dust down and does not launch it into the atmosphere as an air stream does.

"Accelerated, destructive testing after 10 years equivalent use shows absolutely zero



- Improves line productivity (availability)
- Improved belt condition with fewer breakdowns
- Quicker more frequent cleaning cycles
- Opportunity for extended production
- Dry cleaning action leaves belts ready for use
- Reduces risk of shutdown due to quality and sanitation issues
- Eliminate cross-contamination, allowing faster product changeover saves on maintenance and labour costs

- Cleaning in place
- Portable and easy to set-up on multiple belts
- Device works tirelessly without supervision
- Significant reduction in labour to clean belts
- Visually clean belts gives greater confidence in cleaning progress
- Technology designed for unskilled staff
- Frees-up maintenance staff
- Belt removal by qualified technicians less frequent
- Time-slots for belt removal are at a premium and lower priority compared to production demands
- Frees-up sanitation staff
- Staff deployable to other sanitation duties
- Manual belt cleaning normally requires multiple staff at the same time, not required for automated cleaning
- Improves sanitation — kills mould spores and microorganisms
- Proven in mould reduction programs
- Steam kills microorganisms
- Does not require chemicals
- Environmentally attractive technology

damage to the belt, in fact superior cleaning of the interlocking gaps should increase belt life, by reducing any friction from debris," Hodkinson confirmed.

The Jet 4 is the latest model, released just a few months ago. It offers touch screen programmable settings that recall the belt size, speed and debris level of the belt and runs the set programme for that individual belt.

The system is designed to be adjustable to all similar belts within a factory so one system can cover a multitude of belt sizes. Spirals are expensive pieces of infrastructure and cleaning them has been difficult, until now.

The other two systems are designed to clean AND vacuum on flat web belts.

There are portable systems, 5 minute setup and breakdown, these clean the food contact surface and leave a belt clean and sanitised. The belts are run through the patented cleaning head where dry steam is injected, held in a chamber and then vacuumed on exit from the head. All waste is collected so no floor cleaning or collateral cleaning is required.

The second flat belt system is return mounted and can be run continually during production.

The systems can be single or twin head, so enabling both sides of a belt to be immaculately clean on every rotation of the belt.

BioSteam have the largest return mounted dual head system in the world working on the Sunshine Coast.

"Not only have we saved the client a vast amount of money on belt replacement, we are achieving almost sterile results," explained Hodkinson. "The client immediately ordered a second system to be matched to their new production line. The payback was a no-brainer," he quipped.

Up until now the industry has relied on scrapers, water nozzles, air blowing and chemical cleaning. Oftentimes conveyor belts need to be removed for cleaning, dried and then replaced. This can cause significant downtime, the conveyors are the artery of any food manufacturing after all. It's often easier to take a belt off than get it back on!

CIP systems have previously relied on water injection through high pressure nozzles,

they have never really been particularly effective or efficient and a lot have never been used and removed as redundant.

With the BioSteam and KHD systems offering to increase hygiene standards, reduce down time and labour, reduce chemical as well as waste streams, the future is looking bright for this innovative and unique company.

Videos are available of the numerous systems directly from the BioSteam website as well as YouTube channel.

To discuss your needs and uses please contact;

Neil Hodkinson  
neil@BioSteam.com.au  
07 38241883

www.BioSteam.com.au

"When you want really clean, not Nearly clean"



BioSteam  
www.biosteam.com.au



## Plastic packaging supplies made from landfill-biodegradable material

For the First Time, your customers will be able to receive their produce in Plastic Packaging Supplies made from Landfill-biodegradable Material.



product attractive to naturally occurring microbes that exist in modern landfills. The microbes seek out the food and in the process the enzymes they secrete break down the long polymer molecules to the point where they can be digested too. The resulting products of the biodegradation are a biogas and a biomass (humus). There is no plastic residue left or any toxic constituents. Unlike the older 'degradable' plastic inorganic additives that cause the plastic to break up or fragment into smaller and smaller pieces of plastic, the BioGone additives result in the biodegradation of the plastic material.

### How long does it take to biodegrade?

This is the top question asked about landfill biodegradable plastics. Biodegradation is a complex process involving many strains of microbes at different stages. What might biodegrade fast in one location may be slower in another facility. A thin wall section like a bag will biodegrade faster than a thicker section like a food container. A healthy well managed modern landfill with recirculation will have much faster biodegradation rates than a small rural type dump for a landfill. Microbes are not unlike people. Give them good food, moisture and suitable temperatures then they will perform well. One way to explain the biodegradation time is to say the product will biodegrade in a landfill 95% faster than the non biodegradable same product. Hence if a plastic bag takes 100 years to biodegrade down in a landfill, then the BioGone bag would be expected to biodegrade down in 5 years.

The landfill-biodegradability is confirmed by ASTM tests performed by independent laboratories in the USA. The tests are performed in an incubator with landfill sludge and the amount of CO<sub>2</sub> evolved off over the duration time of the test is measured and reported on as the percent of biodegradation that occurred.

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Bio-Gone Plastics

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Many food producers today are going the extra distance to be more environmentally responsible by using sustainable methods to produce their products. It gives them great pride not only in the quality of their products and the efficiency in making them, but also in how they are perceived by the public. However, all too often, they are let down by the irresponsible packaging materials they use because there are just no other options. As any operator who ships products knows, the amount of plastic used in packaging is high. From plastic stretch wrap, plastic bags, plastic packing tape used to seal cartons, to those little 'Packing Slip Enclosed' stick on pouches. They are all single use plastic that is mostly discarded. The shipment may have only travelled across town, meaning those items had a useful life of a few hours then thrown away. Even if the freight was shipped interstate, they only had a life of a few days.

Mainstream plastic packaging products are designed to be low cost, convenient and fast to apply with little thought given to what happens to them afterwards. And as plastic is inert, these single use items can last 100's of years in a landfill. Until recently some of this was "recycled" which means it was sent to China for processing rather than be reprocessed in Australia. However with the introduction of the Chinese sword policy earlier this year, this has come to a stop and Australia is struggling to deal with its plastic waste.

Now using new technology to reduce the amount of plastic accumulating in landfills, an Australian company, BioGone, has produced a line of packaging materials that will naturally biodegrade away when the plastic is disposed to a landfill. Incorporating an organic food source additive into the plastic at the time of manufacture, it makes the resulting plastic



INNOVATION IS OUR STRENGTH.



## Not just tomatoes

Italian company FENCO specialises in food engineering and processing equipment including:

- Tomato processing lines for producing tomato paste, pulp, peeled and cube tomatoes, as well as tomato re-processing lines.
- Fruit processing lines suitable for all types of fruit (continental, but also tropical and citrus) able to turn the fresh fruit into single strength or concentrated purées, clarified or cloudy juices, nectars, smoothies.
- Evaporators multistage for all the applications, including dairy.
- Aseptic fillers and sterilizers.
- Vegetable processing lines, portioning machines and fresh cut salad fully equipped lines.
- French fries lines.
- Jam, marmalade and candying production lines.
- Milk and dairy fully equipped lines for yogurt, cheese, ricotta as well as condensate or powder milk lines.
- Twist spiral pasteurizing, cooling and freezing systems.
- Fluid and spiral deep-freezing systems.
- In-line blending and formulating units in order to create and thermally stabilize all kind of recipes, blends, soups and formulas.

FENCO equipment is available locally though their Australian partner AUSPOUCH Pty Ltd.

- Flat bottom pouches — designed to achieve maximum shelf efficiency with a stable base and compact appearance, flat bottom bags have a front zipper with a wide opening for ease of filling by pouch fillers or semi-automatic processes.
- Zipper stand-up pouches — suitable for dry foods (such as nuts, muesli, rice), pet foods, powdered drinks and mixes.
- Flat bottom bags — suitable for dry foods (such as nuts, muesli, rice), pet foods and coffee.
- Corner spouted stand-up pouches — suitable for sauces and condiments, cooking oil and refill packs.

- Shaped stand-up pouches (spouted and non-spouted) — suitable for water drinks, refill packs, wine, detergents, liquid detergents, sauces and condiments.
- Side seal bags (with easy tear V notch) — suitable for snacks, chips and nuts.
- Stand-up pouches (with valve) — suitable for wine.
- Large format stand up pouches (1.5 to 5 L with dispenser valve) for wines and juices.

## Laminates

Laminates can range from a simple cold fill laminate for yogurt, hot fill foil laminate for

fruit puree to retortable laminates in clear and foil structures for baby foods.

Laminate options for pouches include:

- Natural Kraft with metalised films
- Natural Kraft with aluminium foil
- White Kraft with metalised films
- White Kraft with aluminium foil
- Matt Film with aluminium foil
- Gloss Film with aluminium foil
- Matt PET with nylon
- Gloss PET with nylon
- High oxygen barrier clear film with nylon



If you are thinking of going flexible it is worthwhile to contemplate the whole packaging system — fillers, packaging materials, pouches and most importantly technology to support the systems.

AUSPOUCH will work with you to provide a total packaging solution and even 'whole-of-line' solutions, from receiving raw ingredients to outputting finished, packaged and cartonised product. The company offers a range of filling machines designed to suit all levels of production, from small machines that will fill up to 60 items per minute to larger machines producing 400 items per minute.



AUSPOUCH  
www.auspouch.com.au



# Testing the shelf life of snacks and bakery foods



**Snack foods contain oils that can develop a rancid flavour and odour through lipid oxidation and this limits their shelf life.**

High temperatures, light and oxygen exposure can all accelerate the oxidative process in snack foods. By knowing the oxidation status of their bakery products and snack foods manufacturers can manage the quality and shelf life of the products.

The most important indexes that allow to estimate oxidative stability of finished products are: Free Fatty Acids (FFA) to determine the process of acidification of fatty component, Peroxide value to indicate the degree of primary oxidation and p-Anisidine value (AnV) to evaluate the formation of molecules (aldehydes and ketones) responsible for the

organoleptic alterations. Furthermore, AnV analysis on oil is an indicator of excessive oil deterioration in the deep frying process.

## **Quality control from the oil to the packaged final product**

Several methods can be used to predict the resistance of oil to oxidation, in order to be able to estimate the shelf life of snacks and bakery foods.

The accelerated aging method is based on speeding up the natural aging process by exposing the sample to high temperature and a continuous flow of air. Airflow delivers vola-

tile oxidation products from the reaction cell into a vessel where they are adsorbed by the measuring solution (deionized water). The continuously recorded electrical conductivity of the measuring solution increases due to the absorption of the reaction products.

However, techniques founded on forced oxidation reactions, do not provide an actual knowledge of the original oxidative status of the sample, because they only cause an oxidative degradation.

Solvent extraction techniques using a Soxhlet extractor followed by gas-chromatography-mass spectrometry continue to be used



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as a reference method by the AOAC. However this method is slow and cumbersome, involves toxic solvents and requires trained personnel and a fume hood.

CDR FoodLab® is an analysis system designed to perform a quality control about the oxidative stability of finished snacks products. The analysis system does not require trained personnel and can even be performed at the production line.

Several analyses can be carried out at the same time on the same sample and, thanks to the multitasking mode, it is possible to process one analysis and to start another one at the same time, with the possibility to go back to the first one at any moment.

The system can be used to analyse 16 samples at the same time and constantly monitor the production process, obtaining

exact and accurate answers in just a few minutes.

The CDR FoodLab method does not require the use of hazardous solvents or complicated extraction techniques. This means risks for the operator are eliminated and the environmental impact is minimised.

The method was developed in the CDR laboratories to let users ascertain the shelf life of bakery products, snacks and spreads by determining the acidity (FFA), peroxides (PV) and p-Anisidine levels. The method is simpler and results are obtained more rapidly than with traditional procedures.

### Applications in the frying industry

CDR FoodLab system has been intensively used for quality control in the frying industry for many years. Free fatty acids, peroxides values and p-anisidine are among the most important analyses for this sector. The easy-to-use system can help manufacturers avoid off-flavours by ensuring the quality of the oil or even managing the entire frying process. With the possibility of shelf life determination CDR FoodLab becomes an important system that allows the frying industries to manage quality from the oil to the packaged final product.

### How to use CDR FoodLab

CDR FoodLab determines the shelf life of finished snack products by monitoring the

oxidation status and the rancidity of the oil contained in different products.

The system comprises an analyser based on photometric technology and a kit with disposable pre-vaial reagents with low toxicity, in packages of 10 tests.

Analyses can be performed in a few steps. Oil is extracted mechanically from the snack or fried product using a press, so no solvents are required. After the extraction step, the solid oil suspension is centrifuged (5 minutes) and the oil extracted is collected to perform the analysis (5 minutes).

A determined amount of the sample is then dispensed into a cuvette containing the buffer — generating a colorimetric reaction. Following photometric reading the result of the test is immediately available.

The CDR FoodLab analysis system has been specifically developed by CDR to respond to the needs of snacks producers of any size. It allows testing the shelf life of finished products (fried snacks and nuts) more rapidly and easily than traditional methods.



Australasian Medical & Scientific Ltd  
[www.amsl.com.au](http://www.amsl.com.au)



# Automated pallet wrapping for sustainable manufacturing

*Tim Baron, Business Manager, Foodmach*

**Research shows 82% of FMCG manufacturers are prioritising building sustainability into the supply chain. Are you one of them?**

The first step in your fulfillment supply chain, stretch wrapping, is the process of securely wrapping the pallet with stretch wrap to protect and unitise the product, as well as to securely transport it through the supply chain. The stretch wrapping process can be manual, semi-automatic or fully-automatic.

In the case of manual pallet wrapping, the operator attaches the stretch wrap to a pallet load, he or she then goes around the load until the process of wrapping has been completed. It is time and labour resource intensive. Manual wrapping methods can at best achieve a stretch of 10 or 20%.

Sustainable manufacturing is all about being resource efficient. It can be about reducing costs by reducing the amount of materials

from an input perspective or reducing the cost in terms of disposal costs without compromising the product quality. This is where automated pallet wrapping solutions can make an impact.

Automated pallet stretch wrapping solutions can pre-stretch the film from between 250% to 450%, saving you material, and money, by up to 55%. They also wrap without any operator intervention up to 130 pallets per hour so improve your efficiency and productivity. If you are using fewer resources and you have less waste, it's going to cost you less.

Now the question is, can automated pallet wrapping solutions handle all load types?

The simple answer is, yes.



## Types of stretch wrapping solutions

There are three main types of fully-automatic stretch wrapping solutions, with designs based on factors such as pallet size, pallet weight, pallet height, load type and load stability.

1. Turntable: The pallet is placed on a turntable which spins the pallet load while it is stretch wrapped by a tower moving up and down to wrap the whole pallet. This method is most suitable for light to medium weight stable loads that do not get dislodged while spinning around on the turntable.
  2. Rotary arm: A specialised arm rotates around the pallet to wrap the load. This system requires a larger footprint and is best suited for heavy or unstable loads.
  3. Ring style: Similar to a rotary arm, with the film carriage arm being mounted to a ring that rotates around a load as it passes through the conveyor system. These systems are most useful in high-volume manufacturing lines, or for larger loads. They can also wrap multiple loads at a time.
- The two key questions we get asked when

customers are considering automatic pallet stretch wrapping solutions are:

- How do you ensure the pallet load is as stable as possible with the minimum amount of stretch film?
- How do you ensure our product arrives at our customer site in perfect condition?

The magic lies in getting the containment force right. This is the pressure holding the load together and is created by the number of revolutions of the stretch film multiplied by the tightness of the wrap called the wrap force. The minimum threshold level of containment force on a load determines its success. If the containment force is too low, the risk of an unsecure pallet is high.

There is a trade-off between the wrap force, layers of stretch wrap and throughput. Some testing is usually required to get the optimal solution to ensure an effective and efficient wrap pattern. Robopac and Foodmach offer a service to test pallet stability.

Efficient wrapping technology must ensure product stability while minimising the plastic stretch material used delivering a dual benefit of saving consumables and lower environmental impact to meet your sustainability goals.

Ultimately, fully automated stretch wrappers reduce the risk of injury and time needed to unitise each pallet load. They can improve product protection, maximise unitisation, and minimise packaging costs per load, including labour costs and stretch film costs. Perhaps most significantly, a correctly wrapped pallet reduces supply chain product damage that ultimately reduces product and packaging waste.

Foodmach has extensive experience with large food and beverage companies with end to end packaging line installations. They can help you improve your pallet stretch wrapping process with smart automated pallet wrapping solutions.

For more information visit [www.foodmach.com.au](http://www.foodmach.com.au) or call 1800 FOODMACH (366 362).

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# Compressed air considerations for food industry applications

Most of Australia's food processing and packaging industries rely on compressed air to provide power for production demands which vary greatly from industry type to seasonal variations. The selection of the right air compressor and system to match such needs is critical, not only for maximum productivity but to minimise the impact of rising energy costs.

Today, with the introduction of new technologies in a wider and more sophisticated range of compressors and ancillary equipment, every operator has the opportunity to select a compressor that will match their application requirements immediately and into the future.

## FOOD GRADE AIR PRODUCTION

Due consideration must also be given to the quality and cleanliness of air being generated through the compressor and ancillary equipment. Potential contaminants such as dust, pollens, hydrocarbons, oil, moisture and other impurities can come from ambient air, lubricants and other pollutants in the air reticulation system which can also cause costly damage to downstream equipment as well as product spoilage, so it is important that compressors output 'Food Grade Air'.

Martin Curd, Sales Manager of Southern Cross Compressors, explained: "Using high quality coalescing and carbon filtration backed up by the use of a residual lubricant sensor to monitor compressed air and log (record) the hydrocarbon levels, the highest level of

air quality can be achieved and sustained. At Southern Cross we use 'STELLA' Food Grade Synthetic PAO Compressor Lubricant which is food-safe, non-toxic, and developed for rotary compressors used in the food, drink and pharmaceutical processing and packaging industries to meet all NSF H1 Food Grade Food-safe standards for the use in HACCP Certified Food and Packaging Manufacturing Plants. Our FGO series filters are engineered to ensure the highest quality compressed air for food industry applications. The highly efficient FGO range of filters are designed for the highest contaminant retention (99.9999% efficiency) with minimal pressure drop resulting in premium quality compressed air with reduced operating costs."

Martin said, "An example of this is an iconic regional Victorian food production plant that recently installed a third large Southern Cross KHE series, two stage compressor to cater to increased production and compressed air demands. Each compressor

is connected into the system through dedicated filtration and drying equipment to provide extremely high quality air to the processes. Each compressor operates with a food grade synthetic lubricant and although the compressed air does not come into contact with the product, the air is considered highly suitable for food processing."



## VARIABLE AIR SUPPLY DEMANDS

Within such a diverse range of production demands and multiple applications, it is highly beneficial both in delivering ample power to match each production phase whilst not wasting valuable energy when pauses or minimum outputs are required. By introducing Variable Speed Control (VSD) to single or multiple, in-line air compressors each compressor can be easily programmed and controlled to exactly match production scheduling. Martin stated: "This can amount to enormous energy savings, every day, whilst not affecting continued production at maximum efficiency. It also reduces

unnecessary constant demands on the whole system that reduce machinery life and increase maintenance costs and downtime."

## SINGLE OR TWO STAGE COMPRESSORS

Many larger food industries are opting to upgrade to new generation, two stage rotary screw air compressors which can more than match required air generation with less energy input, and that means considerable savings in energy costs.

"Our two stage machines operate under far lower bearing loads which means lower maintenance requirements and lower likelihood of breakdown. They just purr along! Combine

the two stage air compressors with VSD and the energy savings offer surprisingly fast pay-back on capital expenditure," Martin added.

## CUSTOMISED COMPRESSOR OPTIONS

For specialised food industry applications, air compressors can be designed or adapted to suit environmental conditions, required air quality, demand variability and other considerations.

Mark Ferguson, CEO of Southern Cross Compressors, stated: "We get many requests that require innovative solutions. Recently we utilised special components and stainless steel cabinets to supply Huon Aquaculture with seven rotary screw (KHE) compressors to run their sea based operations." (See case study below.)

"We also assisted a salad mix grower to develop a revolutionary colour sorter, air jet cleaning system to ensure his product was perfect for his export market. Our design technicians are experienced at providing application specific solutions for food and other specialised applications."

## SERVICING AND MAINTENANCE

However, specifying the right replacement compressor alone won't maximise efficiency, cost saving and air quality unless the air delivery lines, couplings and ancillary equipment such as filters, dryers and receivers are also well maintained.

For this purpose, Southern Cross conduct a complete system survey to detect leaks and any inefficiencies that require fixing to gain maximum performance and energy cost savings from every new installation. To ensure continued, trouble free and cost efficiency of the air compressor and systems, Southern Cross provide customised customer maintenance programs.

Mark added: "We are so confident in the durability of our complete KHE Rotary Screw range that we offer our customers a Lifetime Airend Warranty."



### HUON AQUACULTURE:

*Salmon Farming*

**Compressed air links innovative aquaculture operations.**

Having utilised compressed air in their land-based operations for years, Huon Aquaculture Tasmania have successfully trialled the use of compressed air in their sea-based operations.

Huon commissioned 37KW Southern Cross KHE compressors on feed barges at the centre of each major pen configuration to power the salmon recovery from pens to the feed barges. This innovation has proven highly successful allowing remote selection of up to 12 separate pens to be centrally and individually controlled. With Huon's ever evolving innovation and development of safer and more efficient systems, management have now opted to upgrade and replace these well worked compressors with seven new models. Working with Southern Cross designers and technicians, the new Huon customised compressors will utilise a high level of stainless steel componentry and be fully encased in stainless steel cabinets to better weather the extreme off shore conditions encountered in the salmon farm environment.

David Morehead, General Manager of Marine Operations at Huon, stated: "After experiencing the reliability and efficiency of the older compressors, we had no hesitation in working with Southern Cross to replace them with new KHE series compressors adapted specifically to our needs. We would expect the new air compressors to serve us well into the future."



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