

May/June 2014
Vol.22 No.1

what's new in **Food** technology & manufacturing



PP100007393

foodpro 2014

Food frontiers

Selecting equipment



We sell, service and support a wide range of food processing and packaging machinery across Australia and New Zealand.

With our selection of exclusive machinery partnerships we have the ability to offer your company an equipment solution, whether it be a standalone processing option or a complete production line from processing to packaging. Servicing all of Australia, we also offer you a high level of customer service and maintenance.

To see the wide range of products we offer please visit our Equipment Range. Catering from the largest to the smallest companies, Vemag Australia can provide your company with timely and cost-effective business solutions.



Fomaco specializes in the manufacture of injectors for curing and marinating various types of meat, poultry and fish products.

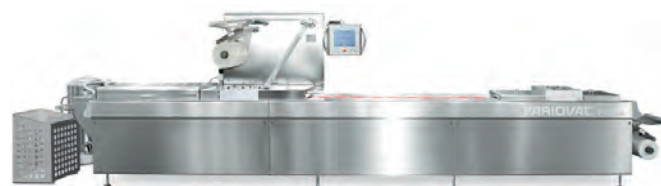
Fomaco has developed a range of ancillary machines that work in conjunction with their injectors.

Combined with our passion for excellent machine design it has produced remarkable results for our customers by providing the most accurate, reliable, and hygienic machines on the market.



Variovac was founded in 1970. In 1996 they commenced their own development, design and production of thermoformers and tray sealers.

They also fit the machines with important additions like labelling and coding devices, filling systems, leak testers, vacuum chamber machines, trays and files. Sales and service take place via partners worldwide such as Vemag Australia.



Holac Maschinenbau GmbH is today a leading, globally recognised company in the cutting-technology industry.

The holac brand stands for unsurpassed precision, reliability and quality. For over 40 years, holac has been providing solutions to cut meat, meat products, cheese, fish and vegetables.



Seydelmann, a company with long tradition and located in Stuttgart and Aalen are one of the world-leading manufacturers of cutters, mixers and grinders for the food industry.

The high-quality machinery are used in the fields of meat processing, dairy, fish, confectionary, vegetables, bakery and soya processing of both industry and trade. Moreover Seydelmann plans and supplies complete production lines and entire meat processing plants as per customers requests.



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Come and see us at foodpro

I love conference/exhibition season. It is my only chance to mix with and meet lots of the readers of *What's New in Food Technology & Manufacturing*/www.foodprocessing.com.au and also to see the latest equipment and innovations and technology advances.

This year should be pretty good.

foodpro is held every third year and this year, for the first time, it is being held in Melbourne. And, co-located with foodpro is the Australian Institute of Food Science and Technology's 47th Annual National Convention. This means that in one trip you will be able get the lowdown on:

- global burden of disease
- nutrition and health opportunities for the food industry
- epigenetics and food - health claims
- innovation

at the convention and also meet all of the food industry suppliers and see all of their equipment at foodpro.

There is lots more about the exhibition and convention in the magazine so please keep reading.

All of our NZ readers unwilling or unable to cross the ditch for foodpro will not be left out as their biannual exhibition, Foodtech Packtech, will be held in Auckland in September. This exhibition, like foodpro, is free to attend and also includes a seminar program.

What's New in Food Technology & Manufacturing/www.foodprocessing.com.au will be having stands at both of the exhibitions and I would really like you to come by and have a chat. I am always amazed at the passion and ingenuity of the food and beverage industry professionals attending the events and love to hear what you do. I also love feedback on our magazine, website and eNewsletters. I promise you that I am not precious and want the media channel to contain the sorts of information you find useful and to present it in an easily accessible manner.

So, if you have any ideas about what we could do better please come by and tell us. (You are also welcome to come by and just tell us we are fantastic - in fact, you could just email my publisher Geoff Hird, ghird@westwick-farrow.com.au, and tell him that.)

Having been the editor of this magazine for very nearly 17 years I have been to lots of foodpros and can offer some serious advice - wear comfortable shoes, pace yourself and come for a couple of days. Take your time to see all of the exhibitors not just those whose stands have all the pizzazz, the delicious food samples or the pretty girls. Often, tucked away in an obscure corner is someone introducing a technology that you have never heard of or thought of but is just what you really need. Make sure you take the time to discover them.

But still come and see me as well - after all, we are giving away stress balls shaped like coffee cups!



Regards
Janette Woodhouse
Chief Editor
*What's New in Food Technology
& Manufacturing*
www.foodprocessing.com.au



How do you know

whether equipment, materials and services
are suitable for use in food processing?

Only one mark truly confirms a non-ingredient product is food safe. If it's not food safe in every respect, it can't carry this mark – simple.

The HACCP Australia Certification mark is aligned with the due diligence requirements of the world's leading food safety standards and quality systems. Ten key criteria are examined to give you that full assurance. Certified products need to satisfy ALL criteria – not just individual components. It's either completely fit for its purpose or its not!



No ifs, no buts, it is or it isn't!

That's why products from these well respected manufacturers and many more carry the mark.



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Brands you can trust



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eliminate the hazard - reduce the risk

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Food

FOR thought



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Senate Inquiry examines procurement of Australian products

AUSVEG has been called to appear before a Senate Finance and Public Administration References Committee Inquiry on Australian Government Procurement. The organisation has been asked to submit a series of recommendations on how to improve the government's procurement practices.

The inquiry examines the Commonwealth Government's use of Australian goods and services in its departments and agencies, and the economic, social and environmental benefits of using Australian goods and services.

In its formal submission, AUSVEG has encouraged the government to consider ways to make its procurement policies more efficient and to support Australian goods and services that will secure long-term strategic capabilities of supply for the nation.

Full story: <http://bit.ly/1rM0irc>

Food processing training centre to educate next generation of experts

The ARC Biotechnology and Food Processing Training Centre, led by chemical engineers from the University of Sydney, will train Australia's next generation of food technology and manufacturing experts.

Professor Fariba Dehghani from the university's School of Chemical and Biomolecular Engineering will direct the centre, which is funded for three years. According to Professor Dehghani, the centre will support Australian businesses to design better methods of food processing and storage, as well as develop advanced manufacturing techniques aimed at reducing costs and increasing energy efficiency.

"A key objective is to boost the Australian industry's capacity to compete in a global market particularly in the production of nutraceuticals - food products that are fortified with vitamins or minerals and which provide health benefits as well as nutritional value," said Professor Dehghani.

Centre co-director Associate Professor Robyn McConchie, head of Plant and Food Sciences in the Faculty of Agriculture and Environment, says fruits, vegetables, grains and their residues potentially contain numerous underutilised bioactive compounds.

The work of the engineering team will be complemented by the expertise of food science and chemistry researchers based in the university's Department of Plant and Food Science. Thirteen PhD students and three Post-Doctoral Fellows will work on research projects at the training centre.

The multidisciplinary research team will work closely with industry partners including AB Mauri Technology & Development, Casella Wines, Ecopha Sdn. Bhd, PharmaCare Laboratories, Stahmann Farms Enterprises, Lang Technologies International, Agricure, Marine Biotechnology Australia, Perfection Fresh Australia, Batlow Premium Juices and Peanut Company of Australia.

Full story: <http://bit.ly/1fqrCi>



Smartphones can beat counterfeiting

How can you tell if a food product is counterfeit? Soon, if MIT researchers have anything to do with it, you'll be able to use your smartphone.

MIT researchers have developed a new type of tiny, smartphone-readable particle that they believe could be deployed to help authenticate products. The particles, which are invisible to the naked eye, contain coloured stripes of nanocrystals that glow when lit up with near-infrared light.

The particles could also be equipped with sensors that can 'record' their environments, ensuring that they have been stored at the correct temperature to ensure the product doesn't deteriorate.

An advantage to these particles is that they can be read without an expensive decoder like those required by most other anti-counterfeiting technologies. Using a smartphone camera equipped with a lens offering twentyfold magnification, anyone could image the particles after shining near-infrared light on them with a laser pointer. The researchers are also working on a smartphone app that would further process the images and reveal the exact composition of the particles.

Full story: <http://bit.ly/1m9gQ9e>





Let's change the way we talk about food processing

Speakers at the Institute of Food Technologists' (IFT's) Wellness 2014 event in Chicago have called for a change in the conversation around food processing.

In the story of food, food processors are often labelled as the villains and food scientists need to have the courage to communicate the

benefits of processed and packaged foods according to

David Freedman, contributing editor to The Atlantic, and Trevor Butterworth, editor-at-large of Stats.org. They urged food companies to change the way they talk about their work in order to enable the general public and the media to develop a clearer sense of the benefits processed foods offer.

Butterworth also called for a change in the way the food industry talks about itself. He spoke of the need for scientists to tell a more engaging story about what they do, suggesting that this could be accomplished by bringing in people who can talk about developments in an interesting way.

Full story: <http://bit.ly/1o1yugg>

Comprehensive GM test developed

In response to increased demand for monitoring and labelling of genetically modified (GM) foods, scientists have developed a comprehensive method for detecting GM ingredients. It is claimed to be the first of its kind in the world.

Policymakers, particularly in Europe, have instituted regulations to monitor GM products. Although researchers have designed a number of methods to detect genetic modification in crops, no single test existed to conduct a comprehensive scan.

Li-Tao Yang and Sheng-Ce Tao and colleagues have developed a test they call MACRO, which stands for multiplex amplification on a chip with readout on an oligo microarray. It combines two well-known genetic methods that flag about 97% of the known commercialised genetic modifications - almost twice as many as other tests.

The researchers say the test can easily be expanded to include future genetically modified crops.

Full story: <http://bit.ly/OjEO6b>

Experts recommend standard definition for whole grain food

A roundtable of US and European nutrition experts has unanimously recommended the development of a standard definition for whole grain food. The experts recommend that a whole grain food contain at least 8 grams of whole grain per 30 gram serving.

The outcomes of the roundtable - including the recommendation - were published in a paper in the March issue of *Advances in Nutrition*.

While the definition of whole grain is well established, a consistent definition of what constitutes a whole grain food has not been developed and adopted for use. A definition of a whole grain food would enable consistent product labelling and messaging, encourage manufacturers to produce products with meaningful amounts of whole grain, provide a consistent approach to quantifying whole grain foods in research and reduce consumer confusion, the roundtable concluded.

Research shows that whole grains provide more than just fibre - they also include beneficial bioactive components such as vitamins, minerals, dietary fibre, beta-glucan, inulin and phytosterols. The panel concluded that these additional benefits warrant a whole grain definition independent of fibre.

The roundtable was convened by Cereal Partners Worldwide and General Mills Bell Institute of Health & Nutrition.

<http://bit.ly/1rDexN0>



Food

FOR
thought



© Sukharevskyy Dmytro/Dollar Photo Club

Saturated fat: unfairly targeted?

A US cardiovascular researcher and doctor has made waves within both the medical and research sectors by publishing an editorial arguing that the theory that saturated fat raises cholesterol levels is false.

Dr James DiNicolantonio says that not only do low saturated fat diets do nothing to curb heart disease, current dietary advice to replace saturated fats with polyunsaturated fats is based on “flawed and incomplete” research from the 1950s.

Dr DiNicolantonio has called for an urgent review of dietary guidelines and an end to the vilification of saturated fat.

While Dr DiNicolantonio's editorial has been popular in the media, a number of scientific experts disagree with his statements.

“This article rubbishes the relationship with saturated fat and CVD, misrepresents the scientific evidence and then goes on to put the blame on sugar,” said Professor Tom Sanders, head of the Diabetes and Nutritional Sciences Division in the School of Medicine at King's College London.

Full story: <http://bit.ly/1jfkaQN>

It's official: dark chocolate really is good for you

While many of us cite the health benefits of dark chocolate as the reason for our addiction to the stuff, the exact reason for these health benefits has remained a mystery for many years - until now.

Researchers reported at the 247th National Meeting & Exposition of the American Chemical Society (ACS) that certain bacteria in the gut digest the chocolate and ferment it into anti-inflammatory compounds that are beneficial to the heart.

“We found that there are two kinds of microbes in the gut: the ‘good’ ones and the ‘bad’ ones,” said Maria Moore, an undergraduate student at Louisiana State University, who was a researcher on the study into dark chocolate.

“The good microbes, such as *Bifidobacterium* and lactic acid bacteria, feast on chocolate. When you eat dark chocolate, they grow and ferment it, producing compounds that are anti-inflammatory.”

Bad bacteria such as *Clostridia* and some *E. coli* are associated with inflammation and can cause gas, bloating, diarrhoea and constipation.

Full story: <http://bit.ly/1m9f6gd>



© stock.xchng/profile/whizzy

Wine research gives excellent return on investment

Investing in research into wine yeast pays off, new research shows. An independent study commissioned by the Grape and Wine Research and Development Corporation (GWRDC) has found that \$1 spent on research into improving the performance of yeasts generates \$7.40 in returns to winemakers.

GWRDC commissioned a cost-benefit analysis of its research to develop new yeast strains and new techniques to manage yeasts during fermentation.

Yeasts play an essential role in wine production - far more than just helping with fermentation. They help give a wine its character, aroma, flavour and mouthfeel. One of the GWRDC projects involved breeding new yeast strains that will enhance naturally fruity or savoury flavours in wines and others that will enable winemakers to better manage challenging ferments.

Full story: <http://bit.ly/1mW44Pa>



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family
of closures,
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possibilities

- ✓ Tamper Evident to ensure your products integrity on shelf.
- ✓ Lockband is our superior breakband that applies easily and is also easy to open.
- ✓ Lightweight
- ✓ Australian made



Food FOR thought

Food science research centre to open

A new centre for food science research is to be established at Charles Sturt University (CSU), after the university secured \$2.15 million in funding from the Australian Research Council (ARC).

The ARC Training Centre for Functional Grains, funded through the Industrial Transformation Training Centres program, will be a research hub for grain scientists from CSU, NSW Department of Primary Industries (DPI) and CSIRO. It will focus on three commodities: rice, pulses and canola.

The Graham Centre for Agricultural Innovation - a collaborative research alliance between CSU and

NSW DPI - will also be involved with the centre.

Other partners include GrainGrowers, MSM Milling, Flavour Makers, Teys Australia, Woods Grains, Grains and Legumes Nutrition Council (GLNC), Grains Research and Development Corporation (GRDC) and Rural Industry Research and Development Corporation (RIRDC).

The centre has identified several aims:

- Identifying the preferences of Australian and international grain customers
- Improving grain storage; developing new grain-based products with enhanced sensory and health attributes
- Training the next generation of food science researchers

Full story: <http://bit.ly/1i4DsGU>



Guidance available on country-of-origin claims

New guidance on complying with the Australian Consumer Law when making country-of-origin claims has been published by the ACCC (Australian Competition and Consumer Commission).

The guidance provides information and examples to help businesses determine when they can use the claims 'Made in Australia', 'Product of Australia' or 'Grown in Australia' and includes advice on how a business can rely on the 'safe harbour' provisions of the Australian Consumer Law.

"Any claim that is likely to mislead consumers about the origin of a product will also breach the law. Credence claims are a priority area for the ACCC, particularly those with the potential to adversely impact the competitive process and small businesses," said ACCC Chairman Rod Sims.

Businesses making false or misleading representations could face penalties of up to \$1.1 million under the ACL.

For example, Coles paid infringement notices totalling \$61,200 for alleged misleading representations about the country of origin of fresh produce made in five of its stores between March 2013 and May 2013.

Full story: <http://bit.ly/1o1FMRg>



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Value through expertise





foodpro 2014

The 'best of the world' food and beverage processing technology, innovation and equipment will be on display in Melbourne in June. And, better yet, if you are involved in the food or beverage processing industries you can come and see it all for free.

foodpro is the event to find out about the latest global innovations and trends to help remain ahead of your competition, by decreasing operating costs and increasing efficiencies.

Even though foodpro has been the Asia Pacific's most iconic food manufacturing event since the 1960s, it has never been held in Melbourne - until now. This year, for the first time ever, Melbourne's Convention and Exhibition Centre will be the venue for the event. More than 300 food and beverage processing industry suppliers will have their latest processing technology, plant equipment, ingredients, additives, testing equipment and more on display.

Held once every three years, foodpro is an opportunity for event visitors to meet face to face with specialist suppliers and compare an extensive range of ingredients, packaging solutions, as well as food processing machinery and technology all in one location.

What you will see

For four days, foodpro will bring together the food processing and manufacturing industry to do business face to face. With

When:	22 - 25 June 2014
Where:	Melbourne Convention and Exhibition Centre
Registration:	www.foodproexh.com
Register:	now for free entry
Opening hours:	Sun 22 June 11 am-5 pm
	Mon 23 June 10 am-5 pm
	Tue 24 June 10 am-5 pm
	Wed 25 June 10 am-3 pm

the latest global innovations, trends and technology on show, there are plenty of opportunities to learn better ways to do what you do best. To make life easier for foodpro visitors the event is divided into zones.

Meat and seafood processing

Sixty per cent of food consumed in Australia contains meat or meat products, so this is a market to get your teeth into! This zone includes processing, slaughtering, packaging and vacuum equipment.

Beverage equipment and technology

The ever-growing range of new products, brands and brand-extensions in milk bar fridges and supermarket shelves and chillers indicates the willingness of consumers to try new tastes and explore new categories. This creates opportunities right along the production chain. foodpro will showcase the latest ingredients and additives, containers, processing and

"I was amazed I could pick up so many great ideas and options from the foodpro show. Will definitely recommend and attend again." All Dunn International

bottling, capping and sealing, labelling and more, to take advantage of these opportunities.

Ingredients and additives

Food ingredients and additives are an essential part of most food processes and have the potential to increase efficiency and profitability by doing everything from improving taste to extending shelf life. Whether you're looking at changing existing products or creating new ones, you'll find the food ingredients and additives you need at foodpro 2014.

Packaging and supplies

Packaging is a functional vehicle that must deliver optimum performance from the production line, through the supply chain to kitchen or pantry. Good packaging can help drive sales, lower manufacturing and handling costs, as well as improve shelf life - and you'll find all you need to optimise your packaging at foodpro 2014.

Processing machinery and equipment

Whether you're looking at new production or increasing the efficiency and flexibility of an existing plant, you'll find your machinery and equipment answers at foodpro 2014. Our exhibitors have the knowledge and resources to assess your food processing requirement, as well as provide you with a range of options.

Food technology, testing and safety

In a world where risk management is becoming increasingly important, food testing and safety is a vital part of every food manufacturing and processing operation. From on-site analysis and testing to outsourced services, efficient and effective processes can reduce risk, lower costs and maximise productivity. Discover and discuss the latest food testing and safety products and services at foodpro 2014.

Plant equipment and technology

The importance of the appropriate application of plant equipment and technology is evident to every successful food processor and manufacturer. At one end of the range, it can lower the costs and complexity of regulatory compliance, reduce maintenance and overheads, as well as increase staff morale.

At the other, it can deliver improvements, ranging from processing efficiency and reduced energy use to decreasing waste and more cost-effective product prototyping. See and explore the latest developments in plant equipment and technology at foodpro 2014.

Why do you need to attend?

- Meet face to face with 300 specialist suppliers representing hundreds of manufacturers from around the world.
- Compare an extensive range of ingredients, packaging solutions, as well as food processing machinery and technology all in the one location.
- Decrease your operating costs and increase efficiencies by discovering the latest global innovations and trends.
- Connect with your peers and industry experts.


Who can attend?

foodpro welcomes professionals working in the food and beverage manufacturing industry. Registration to attend foodpro is free but proof of industry involvement may be requested at the registration counters or the entrance and can include:

- a business card in your name, or
- employee verification on company letterhead, or
- evidence of membership of a relevant professional or industry association.

As this is a professional, business-to-business event, people not involved in food and beverage manufacturing and processing, children and pets will not be admitted at any time. The only exception is nursing infants under one year old that cannot be separated from their primary caregiver but be warned, due to OHS, prams or strollers are strictly prohibited inside foodpro.

Can students attend?

Students enrolled at a tertiary level or registered apprentices may attend the show if they have the appropriate student identity card. Primary and secondary school students will not be admitted at any time, regardless of any courses they may be studying. Students must be mindful that foodpro is a business event and as such need to be respectful of exhibitors and their time. 

– ESL –

without heat pasteurisation



With a lot of talk in the beverage industry about non-heat pasteurisation, we are pleased to announce that there is another effective method available that is more economic, more efficient, more beneficial and more compact than other alternatives on the market. With increasing desires to process and consume beverages/food with all the nutritional components still intact, we have some improved and realistic solutions relevant to products such as fruit juices, protein drinks, isotonic drinks, milk, bottled water and RTD's. We offer proven, non-invasive alternatives to heat-based pasteurisation, preserving the organoleptic integrity of the raw materials and the finished product. This is certainly one of the significant growth areas of innovation in the beverage industry.

For more info please contact Paul Baggio at info@fbpropak.com.au or call +61 3 9924-4050. You'll also see more of our food/beverage technology range on Stand M42 at FOODPRO in Melbourne from the 22nd to 25th June 2014.

Companies exhibiting at foodpro 2014

What's New in Food Technology & Manufacturing can be found at Stand number E40; please come by and say hello as you look at the equipment and innovations on display from all of the following companies.

Exhibitor	Stand number	Exhibitor	Stand number	Exhibitor	Stand number
3M Food Safety	A5	Automation Solutions	F22	CMC Technologies	B30
A & D Weighing	H32	B & B FoodPak/Birk & Blyme	P51	Columbit Australia	M30
ABB	R8	Bakon Food Equipment	Q52	Columbit Foods	A35
Accuweigh	R41	Ballantyne	B23	Connell Bros Company	F16
Achado	i1	BASF Australia	R3	Contech Engineering	G18
ACO Polycrete	T8	BBC Technologies	G54	Contract Packaging Systems	G6
Acromet (Aust)	R46	Beijing Xinmei International	U20	CSB-System	Q45
Advance Systems (Australasia)	T1	Bel-Ray	Q6	CSIRO	A2
AGITO Group	J31	Bestech Australia	P53	CST Water Solutions	R16
AgriFood Technology	B2	Bethell Flooring	R22	Cuddon Freeze Dry	Q16
AIFST	D20	Bilfinger	R5	Dairy Industry Association of Australia	T13
Air Energy	J47	Bioline Global	B52	Dairy Innovation Australia	A31
ALS Food	E12	bioMérieux Australia	D52	Deltagen Australia	C5
AMSL	C7	BioPak	F1	Devro	L30
Anhui COFCO Biochemical & GALACTIC Lactic Acid	U29	Bio-Rad Laboratories	A33	DFC Packaging	P2
Anhui Tianheng Tools Manufacture Co	U30	Biosteam	C8	Directus Group	S6
APC Technology	G52	Biotech Solutions	E46	Dotmar Engineering Plastics	U39
Apex Machinery & Equipment Co	U31	Biotechnic	U14	DSM Nutritional Products	A21
Argus	J7	Blucher Australia	Q18	DTS Food Laboratories	A30
Aromatic Ingredients	C51	BOC	G32	E.R.C Packaging	H2
Arrow Scientific	H51	Brenntag Australia	B18	ECAS4 Australia 'Engineering for Health & Hygiene'	D1
Ashworth Bros Inc	O52	Brice Australia	Q34	EcoCatalysts	A6
Assa Abloy Entrance Systems	R15	Bronson & Jacobs	A8	Ecolab	B11
Atlantis Dry Ice Systems	P52	Bruker	B5	Education Institute	T34
Atlas Copco Compressors	H48	Bulk Handling Australia Group	i2	EFI Group	B43
ATT Inox Drain	T18	Bürkert Fluid Control Systems	D11	Elisa Systems	B35
ATTEC Australia	T2	C. J Pearce	U18	Emrich Packaging Machinery	A44
Australian Energy Valley	C11	Cablevey Conveyors	H52	Endress + Hauser	T15
Australian Vinegar	E5	CAPS Australia	R1	Engineering & Export Services	U17
Australian Wrapping Company	D17	CBS Foodtech	O16, P16	Ennio International	J14
Australis Engineering	H37	Cedar Creek Company	J1	Enterline	U5
AUSTRALWEST	F52	Cell Biosciences	A36	Enterprise Connect	D8
		Ceramic Solutions	B39	Eriez Magnetics	T16
		Chemiplas Australia	E18		
		CK Safety	S2		

Exhibitor	Stand number	Exhibitor	Stand number	Exhibitor	Stand number
Evolve Scientific Recruitment	E1	Interoll Australia	B1	Nu-Tek Salt Australasia	A3
Fallsdell Machinery	D32	Intralox Australia	L42	NutraDry	D44
FB*PROPAK	M42	ITP Australia	T45	O'Brien Boiler Services	T27
fdpi Spares & Maintenance	Q2	ITT Bornemann	T33	Omron Electronics	T41
Fibrisol Service Australia	H38	ITT Jetpak	C45	Oomiak	T21
Flavorjen	B46	ITW Zip-Pak Australia	F39	Pac Food	F17
Flavour Makers	H14	J and RW Internationa	A17	Pacific Food Machinery	K38
Fleming Dynamics	C40	Jarvis ANZ	K16	Packsys	J28
Flexco	Q42	Jet Technologies	U34	Pall Australia	B44
Flowcrete Australia	F14	Jiangsu Jinrong Machinery Co	U22	PAQ-IT Australia	C39
Fluid Sealing & Spray	K1	Jining Xinglong Food Machinery		Parchem Construction Supplies	i51
Food & Drink Business Magazine	B25	Manufacturing Co	U33	PCM Group Australia	S7
Food Pro	O42	JMP Engineering	E36	Peacock Bros	J8
Food Processing Equipment	O2	Kalsec Inc	B14	Perkin Elmer	A27
FTA Food Solutions	B6	Key Diagnostics	H51	Phillro Industries	E6
Fuchs Lubricants (Australasia)	C44	Key Technology Australia	K5	Piiz Australia	E8
Fujitsu	B53	Kiel Industries	B29	Powell Industrial	S9
Furphy Engineering	R35	Kingspan Insulated Panels	T19	Procut Australia	i50
Fusion5	U1	Kockums Bulk Systems	F6	Progressive Group	A41
GEA Process Engineering	M21	KROHNE	G14	Proseal Australia	T42
GELITA	B32	KUKA Robotics Australia	T5	PT Associates-Marchant Schmidt	U3
GEMU Australia	U47	Label Power	i10	Pump Engineers (Australia)	Q30
Global Machinery & Supplies		Langdon Ingredients	A40	Qingdao Jianhua Food Machinery	
Australasia	L22	Linco Food Sytems	G24	Manufacturing Co	U24
Globus Group	L2	M.T.I. Qualos	R34	Reactive Engineering	H24
Gold Peg International	J17	Machine Knives (Aust)	L51	Redox	B20
Gordon Brothers Industries	K3	Machinery Automation & Robotics	K2	Rentokil Initial	R28
Graintec Scientific	D7	Machpac	O10	Result Group of Companies	i30
Grip Sheet Australia	H1	Marel Australia	L8	Retracom Contracting	M51
Grundfos Pumps	Q28	Matrix Process Solutions	D29	Rhima Australia	T17
Hales Australia	R6	Matthews Australasia	H18	Robot Technologies-Systems	U37
Hall Industries Australia	G29	MBP Packaging	S1	ROCOL	S5
Hastings Data Loggers	A53	MEI	T6	Rollex Australia	D46
Hawkins Watts	A12	Mettler-Toledo Limited	G44	Rowe Scientific	C52
HBM Packaging Technologies	G11	Millsom Materials Handling	F2	Roxset	D6
Heat and Control	N42	Milmeq	K8	S.I. Instruments	A47
Hebei Chengye Machinery		Minipack International	T52	SAI Global	Q8
Manufacture Co	T24	Minus40	A26	Saito Australia PI	C46
Hela Spice Australia	D5	MM Kembla	U19	Sanderson	C29
Hepworths	i6	Mosca Strapping Systems	J13	Sanikleen	Q51
Hipex	E44	MPI Australia	G44	Saraya Australia	D30
Hq2 Food & Beverage Solutions	A51	MTA Australia	R51	Savannah	F11
HRS Heat Exchangers	R52	Multipac Systems	D18	Schenck Process Australia Pty	
Huon Distributors	T48	Multipack	D45	Limited	D37
Hurl Nu-Way	F21	Multivac Australia	J24	Schiwa & Hayes Machinery	T51
Hychem International	G39	Munters	N51	Schneider Electric	H6
iBulk Solutions	T46	Naturex Australia	D23	Sealed Air Food Care - Cryovac	P30
Icon Equipment International	U43	Neptune Bio-Innovations	A43	Sensient	A24
ifm efector	E21	New Zealand Food Technology		Sensorplex	T36
IMCD Australia Limited	F28	Magazine	C1	SEW-Eurodrive	U9
Impact Automation System	F22	Newly Wed Foods (Australia)	B26	Shandong Dingtaisheng Food	
In Vitro Technologies	D51	Next Instruments	B40	Industrial Equipment Co	U27
IndustrySearch.com.au	R10	Niche Gas Products	A48	Shenyang Jixiang Food	
Inox Australia/Lagarde	E26	Ningbo Frontier International		Machinery Co	T22
Insignia	R29	Trading Co	U28	Shijiazhuang Xiaojin Machinery	
Inspection Systems	i24	Nord Drivesystem	Q7	manufacturing Science &	
Interfood Machinery Group	N30	Nuplex Specialties	A18	Technology Co	T28

Exhibitor	Stand number	Exhibitor	Stand number	Exhibitor	Stand number
Shimadzu	A1	Symetec	Q46	Vertex Hydropore	S3
SICK	G45	SYSPRO Software	F46	Victorian Government Business Lounge	1.102
Sika	T35	Techno-pak	A32	Victus International	B7
Silliker Australia	D2	Techstaff	A52	Viscon Australia	F22
Sky Softgel	T9	Temperature Technology	G2	Visy Technology Systems	P8
SMAC Enterprise	i5	The Le Mac Australia Group	J2	W & P Reedy	N41
Smo-King Ovens	i14	Thermo Fisher Scientific	B36	Wadco Lighting	U4
Sopura Australia	D26	Thompson Meat Machinery	O30	Walls Machinery	G38
Sota Packaging	Q41	Thriving Enterprises	F44	Watson-Marlow Bredel Pumps	T10
SpanSet Australia	R45	TLV	L52	Wedderburn	R42
Splatt Engineering Group	E20	Total Construction	Q36	Wells	Q10
Spray Nozzle Engineering	S10	Transform Solutions	E2	Wenzhou Kasin Valve Pipe Fitting Co	U26
Spraying Systems Co	E17	Trepko UK Limited	E52	Wenzhou Ruida Machinery Co	U25
SPX Flow Technology Australia	E30	Trimatt Systems	B45	Westlab Group	A37
Stella Foodgrade Lubricants	R2	Triton Commercial Systems	H13	Westmartin Leonda	M52
Stevco Seals & Pumps Victoria	R9	Tronics	Q22	What's New in Food Technology	
Stoncor Australia	S52	TXM Lean Solutions	E35	& Manufacturing	E40
Summit Machinery	P42	ULMA Packaging (Aust)	L16	Wiley & Co	L48
Sunrice	A19	Ungerer Australia	D35	Wilmar Bioethanol	B24
Sunrise Packaging Material	D12	United Surface Technologies	O51	Zhongshan Multiweigh Packaging	
Superior Pump Technologies	N52	Universal Processing Equipment	T23	Machinery Co	U32
Surecove/Stainless Drains	R24	Vemag Australia	M2	Zhucheng Dongxiao	
Symbio Alliance	B12	Veolia Water Technologies	U12	Biotechnology Co	A17

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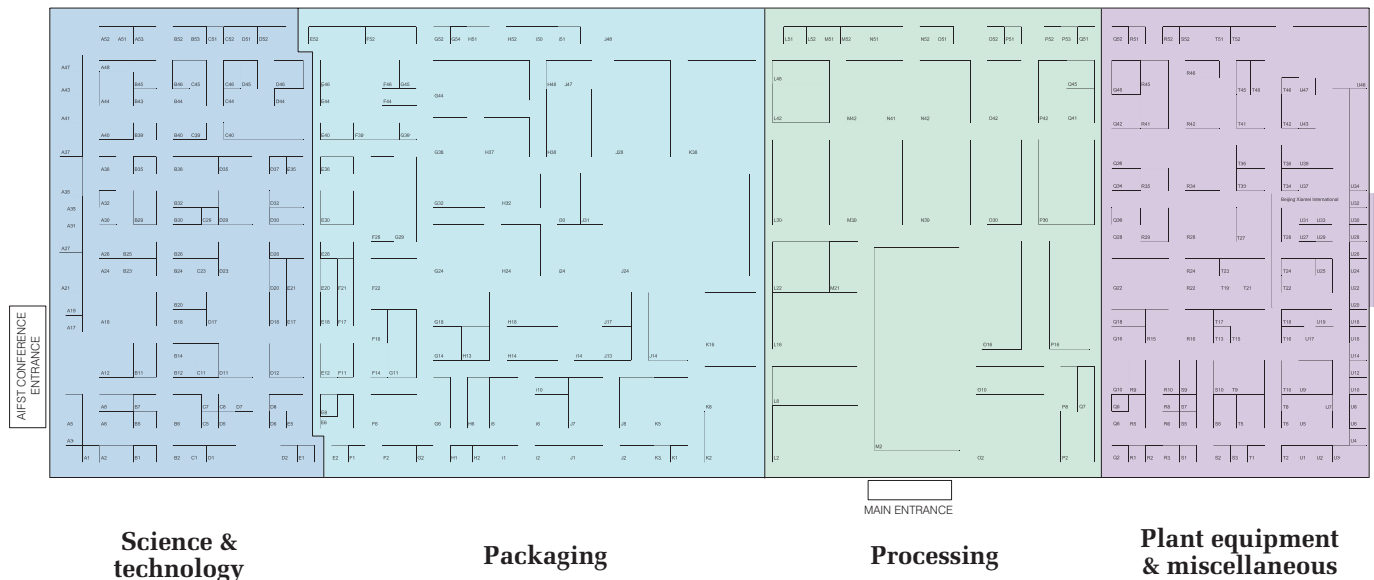
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Floor plan

Put on your most comfortable shoes and allocate at least one full day. As you can see from the floor plan below, foodpro 2014 is a BIG event - getting to more than 300 different exhibitors will really keep you moving. Luckily there are food and coffee stands to keep you nourished as you go.



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CSIRO's virtual mouth spits out results

CSIRO researchers have been investigating the science of chewing with some very interesting and useful results.

Reducing salt, sugar and fat in food products, nifty ways to incorporate more fibre and nutrients into foods and beverages, and even the creation of entirely new food sensations are becoming possible as an outcome of CSIRO's 3D mastication modelling.

CSIRO biomechanical engineer and computer modeller Dr Simon Harrison said the world's first 3D dynamic virtual mouth can provide detailed insight for developing healthier foods.

"In polite company, we can't see inside someone's mouth while they're eating and, until now, it has not been possible to view how the chewing process alters food," Dr Harrison said.

"Using a cutting-edge technique called smooth particle hydrodynamics, we've developed a virtual mouth built on real data about the physics of chewing. It predicts how a particular food breaks down and how flavour is released in the mouth. It also shows the distribution and interaction of components such as salt, sugar and fat.

"Through this technology, we can view and analyse how food at the microscopic level works in the mouth, and how it influences our taste perception."


This new data and understanding is helping to develop foods lower in salt, sugar and fat without changing the taste.

CSIRO food materials scientist Dr Leif Lundin believes the benefits for the food industry could be enormous.

"This technology will give food and ingredient manufacturers the ability not only to model the breakdown of a complex food product, but also the individual components," Dr Lundin said.

"It can also model the costs of making changes to a product, and then calculate the cost benefit. This will save time and money, compared to using the traditional 'cook and look' approach.

"Our research should also help create new taste sensations that could find their way into new products on our supermarket shelves."

Drop into CSIRO's booth (A2) at foodPro 2014 and interact with the models - this will really give you something to chew on. 

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ness district, and a 20-minute drive to Melbourne Airport. It is located opposite the Crown Casino Complex at 1 Convention Centre Place, South Wharf 3006.

Parking

If you're driving to the event, there are four car parks available for use:

- Melbourne Convention and Exhibition Centre Parking -

1060 undercover parking spaces available, managed by Wilson Parking. Entrance and exit off Normanby Road.

- Siddeley Street Parking on the corner of Flinders and Siddeley Streets.
- Freeway Car Park - access is via Normanby Road and Munro Street.
- South Wharf Parking. The entrance off Normanby Road.

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For the Exhibition Centre ask driver to drop off at the Clarendon Street entrance of the Melbourne Convention and Exhibition Centre. For the Convention Centre ask to be dropped off at Convention Centre Place, next to the Hilton South Wharf Hotel.

Tram

Tram numbers 96, 112 and 109 travel down Spencer/Clarendon Streets and stop opposite the Clarendon Street entrance of the Melbourne Convention and Exhibition Centre.

Tram numbers 48 and 70 stop at the end of Flinders Street. Walk towards the Yarra River, across the new pedestrian bridge.

Train

The closest train station is Southern Cross Station. From there the Melbourne Convention and Exhibition Centre is a 10-minute walk or you can catch a tram. Tram numbers 96, 109 and 112 stop opposite the Melbourne Convention and Exhibition Centre.

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Food - the final frontier

47th Annual AIFST National Convention

The annual AIFST National Convention is the premier food technology conference in Australia for industry, research and government organisations, locally and overseas. This year the 47th Annual Convention will be co-located with foodpro 2014.

An outstanding array of local and international speakers will share some of the latest innovations in food science and technology with convention delegates.

This year's convention theme is 'Food - The Final Frontier: Challenges and Opportunities in the 21st Century'. Befitting this theme, the convention program includes such 'hot topics' as:

- Processing efficiency and effectiveness
- Diet, health and performance - what are the choices
- Food reformulation to meet the demands of the 21st-century consumer
- Traceability - how, when and why
- Allergen risk management and developments
- Food chemistry matters
- Food safety - contaminants, pathogens and regulations
- Supply chain economics - the bottom line
- Cereal science - issues for the food industry
- Sustainability for the 21st century

The convention also gives delegates a great opportunity to network with colleagues and friends from all sectors of the Australasian food and allied industries. The 2014 convention includes a half-day devoted to young and developing scientists.

A highlight of the convention this year will be the 'Food Leaders Roundtable Forum' during which the topic 'From Mining Boom to Food Boom - A Reality?' will be debated. Emma Alberici from ABC Television will moderate the discussion and Q&As from the audience.

A number of social functions also form part of the convention program, including a 'Star Trek'-themed Gala Convention Dinner.

Some of the speakers to look out for

Alisa Camplin-Warner OAM

Skills, tips and tools you can use in your life, team and workforce

Alisa Camplin-Warner is an Olympic champion aerial skier who won gold at the 2002 Winter Olympics in Salt Lake City. It was the second skiing medal ever won by Australia, and the first won by an Australian woman. She also won the bronze medal at the 2006 Winter Olympics.

She was awarded an Order of Australia medal in 2007.

Alisa worked as an executive with IBM for 16 years, as well as doing promotional and charity work. She joined the board of the Collingwood Football Club in December 2009.

Alisa is requested as a public speaker by multibillion-dollar companies and small organisations alike. Eloquent, passionate and always professional, Camplin is both entertaining and motivating.

An outstanding array of local and international speakers will share some of the latest innovations in food science and technology with convention delegates.

Rob McConnel

From mining boom to food boom - a reality?

Rob McConnel is the National Industry Leader of Agribusiness for Deloitte Australia and is a member of Deloitte's Global Food Value Chain Centre of Excellence.

As well as strong family ties to the agricultural sector, Rob has a Bachelor of Agricultural Economics and previously worked with the National Australia Bank and the Queensland Industry Development Corporation (now Suncorp Metway) across Northern New South Wales, and Central and Western Queensland.

Rob has over 17 years' experience, which has included a two-year secondment with Deloitte's London-based Private Equity Transaction Services team. Rob has advised a number of international private equity, corporate clients and sovereign wealth funds in their investments within the Australian Agribusiness sector as well as advising domestic operators with respect to capital raisings.

Rob regularly produces thought leadership on the Australian Agribusiness sector and has been interviewed by a number of media outlets with respect to industry views. Most recently, Rob was a co-author on Deloitte's third instalment of its Building the Lucky Country series, 'Positioning for Prosperity? Catching the next wave.'

Greg Tanner

Ultra low gluten barley

Dr Greg Tanner is using protein purification techniques to help modify the properties of plants.

Dr Tanner currently leads CSIRO Plant Industry's Low Gluten Cereals project. Greg's expertise is in plant biotechnology and biochemistry, using protein purification techniques to help modify the properties of plants. He is interested in transferring the results of world-class research to primary producers. He graduated with a PhD in Plant Biochemistry from the University of Sydney in 1983 and has been at CSIRO Plant Industry for the last 28 years.

David Tanner

The impact of PSA on the New Zealand kiwifruit industry

David Tanner joined Zespri in February 2007 in a role responsible for management and development of quality and technical functions. With the onset of the bacterial disease Psa, a decision was made in July 2011 for David to focus on the challenge of leading the Psa R&D program for Zespri and Kiwifruit Vine Health (KVH). In September 2012, backed by a strong response to the Psa incursion, and with a well-developed Psa R&D strategy imbedded, David's role expanded to that of General Manager - Science & Innovation. Prior to joining Zespri, David spent 13 years managing and conducting commercially focused research and development, in both New Zealand and Australia.



John Pitt

Food mycology in Australia - history, methodology and mycotoxin research

At his retirement, John Pitt was a Chief Research Scientist with CSIRO Division of Food Research and he continues to work as an Honorary Research Fellow. His research interests lie in the fungi which spoil foods and produce mycotoxins. His best known work, written with his colleague Dr Ailsa Hocking, is 'Fungi and Food Spoilage', the leading text on foodborne fungi, now in its 3rd edition. He is currently a member of FERG, the WHO Foodborne Disease Burden Epidemiology Reference Group. He was a member of ICMSF, the International Commission on Microbiological Specifications for Foods, for 15 years and has worked on various aspects of food safety with JECFA, the Joint FAO/WHO Expert Committee on Food Additives, and IARC, the International Agency for Research on Cancer. He is a Fellow of the Australian Academy of Technological Sciences and Engineering and of the International Academy of Food Science and Technology. He is an Honorary Life Member of the Australian Society for Microbiology, the Mycological Society of America and the British Mycological Society. He has written or jointly edited 20 books on fungi and food safety and has been an author on 200 research papers.

Ailsa Hocking

Food mycology and its impact on the food industry

Dr Ailsa Hocking has been working in food mycology since 1974, establishing an international reputation for her work in the areas of fungal food spoilage and mycotoxins in foods. Her research interests include mycotoxins and physiology and ecology of food spoilage fungi (effects of water activity, temperature, modified atmospheres; high-pressure processing; preservative resistance; heat resistance); development of improved media and methods for detecting and enumerating fungi in foods; stability of intermediate moisture foods and preserved foods; hurdle technology for control of fungal food spoilage. Ailsa has an extensive publications record with over 150 published papers, book chapters and books. She



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has lectured extensively and has been an invited speaker at many Australian and international conferences. She is the co-author of the definite text 'Fungi and Food Spoilage' (AIFST Bruce Chandler Book Prize, 2010) and editor-in-chief of the 6th edition of 'Foodborne Microorganisms of Public Health Significance'. She is currently Mycology Editor for the *International Journal of Food Microbiology*. Ailsa received the AIFST Award of Merit in 2009.

Ailsa retired from CSIRO in December 2008 and is now an Honorary Research Fellow at CSIRO Food, Animal and Health Sciences, North Ryde.

Nai Tran-Dinh

Mycology and mycotoxins in the Asia-Pacific region - future trends

Nai Tran-Dinh joined CSIRO in 2002 as a postdoctoral fellow and is currently a team leader with interests in microbial and molecular ecology, particularly involving mycotoxigenic moulds. He has worked on and led projects investigating the physiology, ecology, taxonomy, biochemistry, mycotoxigenic potential and understanding relationships between strains of fungi from the agriculturally important fungal genera of *Aspergillus*, *Fusarium* and *Alternaria*. He has worked extensively in the area of *Aspergillus flavus/parasiticus* infection and aflatoxin contamination in peanuts and other crops. This work has included investigating infection cycles, fungal population surveys from crops and soils, mycotoxin production, biological control of aflatoxin contamination and differentiation and phylogeny of strains using molecular markers.

Reinhard Boysen

Probing the interactions of health-beneficial natural products with biomimetic polymers using mass spectrometry

Reinhard Boysen has a PhD (Dr. rer. nat) from the Faculty of Chemistry at the Freie Universität Berlin, Germany, where he specialised in analytical biochemistry. He held a research position in the Department of Biochemistry and Molecular Biology at Monash University and in the last 5 years worked as a Senior Research Fellow at the Centre for Green Chemistry/ School of Chemistry in various fields of analytical chemistry that impact on the green chemical and environmental sciences.

He collaborated successfully in interdisciplinary and international teams, enabling him to expand his core competencies into areas of practical significance, eg, industrial purification technologies, compound analysis and new functional polymers. Reinhard Boysen has made significant research contributions and discoveries in fundamental and applied sciences documented in his 65 scientific publications, 19 book chapters and 5 patent applications.

Philip Marriott

Innovative assessment tools for accurate assignment of food flavours

Philip Marriott obtained his BSc (Hons) and PhD degrees from LaTrobe University, then took up a postdoc at University of Bristol. He joined the School of Chemistry, Monash University, Australia, in 2010, from RMIT University, Australia, having previously been an academic at the National University of Singapore for 5 years. He has been active in high-resolution separations many years. He leads a successful research program in comprehensive two-dimensional GC and multidimensional GC. He has been credited with a number of innovations in developing technologies associated with GC×GC and MDGC, ranging from concepts of retention indices and the modulation ratio in GC×GC, detector technologies applied to GC×GC and MDGC, use of preparative capillary MDGC methods, a new hybrid GC×GC-MDGC method, and the first applications of fast quadrupole MS with GC×GC. Applications include pesticides, aroma compounds, herbs and spices, perfumes and essential oils, fatty acids, wine and other beverages, coffee, petrochemicals and drugs. He has published about 300 research papers and book chapters.

Topic areas

The convention will be divided into four streams so attendees can customise their programs to best meet their individual needs and interests. The topic areas covered will include:

- Agrifood sector innovation - latest developments in horticulture, seafood, pork and functional foods
- Cereal science - issues for the food industry
- Contaminants abound - what the regulations tell us
- Dairy in human health and nutrition
- Delivering the goods - supply chain economics
- Diet, health and performance - what are the choices?
- Food chemistry matters
- Food mycology symposium. The food industry - under the microscope
- Food reformulation for the 21st century
- Food sustainability in the 21st century
- Interesting bugs
- Let's eat! - implications of feeding large numbers in various locations
- *Listeria* - what you need to know
- Processing efficiency and effectiveness - the bottom line
- Tour of MCEC kitchen
- Traceability symposium - how, when, why
- Travel broadens your mind: virtual cook's tour of allergen risk management and developments

Workshops

A number of workshops round out the busy convention program and as an added bonus all of the workshops are accredited

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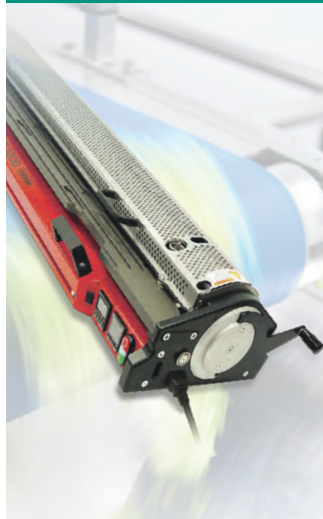


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within the AIFST Continuing Professional Development (CPD) initiative. Make sure you register to attend.

Good manufacturing practice 101

Good Manufacturing Practices (GMP) is a widely used term in the food industry, but are all manufacturers really on the same page when it comes to defining the concept of GMP? The key objective of this workshop will be to establish a common understanding of what GMP is as well discuss the current challenges businesses are facing with increasing governance surrounding GMP. This workshop gives participants the opportunity to be out of their normal day-to-day role and be in a creative and practical environment where they will participate in bringing to life the key principles of GMP and how businesses can achieve success quicker, smarter and, most importantly, through people interacting with each other.

Health claims and scientific substantiation

The new Health Claims Standard 1.2.7 was gazetted in January 2013. Provisions in this standard include pre-approved health claims and an option for self-substantiation of general level health claims. This workshop will help you to understand the requirements for self-substantiation. It will cover what is expected to be included in a dossier to substantiate a health claim and what other factors you may need to be aware of when preparing one. Hands-on exercises and expert feedback will help to ensure participants gain a depth of understanding of the issues involved in preparing a dossier to substantiate general level health claims.

Mastering the PIF AFGC product information form

Save on the time spent completing the form and learn how to use it more efficiently. The session will cover: responsibilities as a supplier or recipient of the PIF, tips and tricks that simplify use, navigating with

ease and understanding the in-built relationships, common pitfalls, how to effectively complete the form, techniques for reviewing and validating the content to improve the quality and accuracy of the information supplied. Making the most of the PIF User Guide includes 'hands-on' activities to provide detailed understanding of this form and its use.

Foreign objects: are they only your problem?

This workshop will give attendees the opportunity to examine the whole supply chain and see how others are reducing foreign object contamination incidents. Best practice strategies for prevention and detection will be demonstrated and the latest equipment will be available for viewing.

About the AIFST

The Australian Institute of Food Science and Technology is a national association representing individuals from all sectors of the Australian food and allied industries, giving members exposure to all aspects of the agrifood sector.

The institute was founded in 1967 and is a member of the International Union of Food Science and Technology Organisations (IUFoST). It is managed by a national council and supported by state branch committees which are democratically elected from and by members on an annual basis. AIFST also hosts a variety of local and national special interest groups.

AIFST has a strong reputation for facilitating food learning, networking and communication regardless of company size, industry segment or professional qualification. It aims to maximise the professional standing and opportunity for all its members.

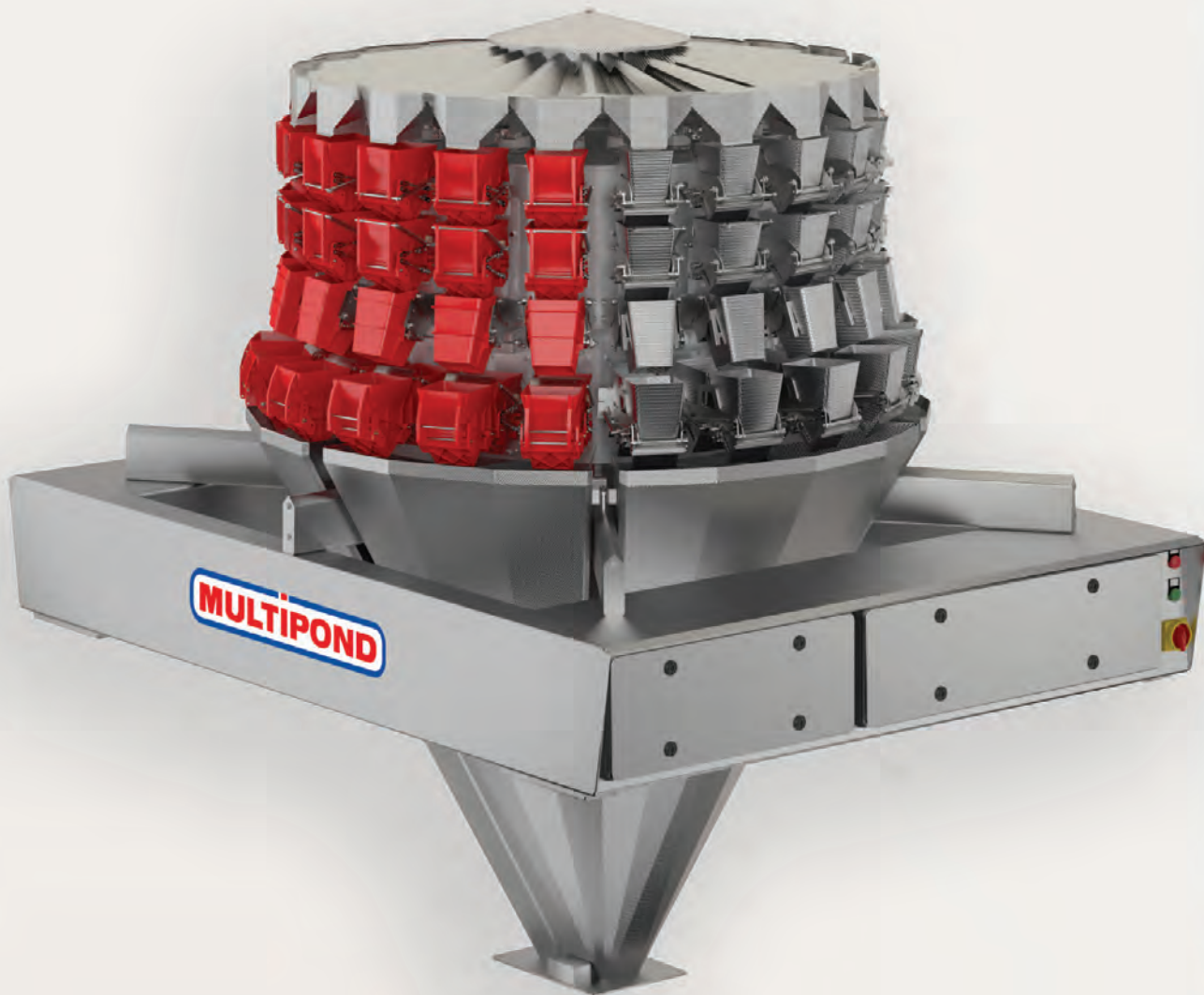
For details on how to join the association or to register to attend its convention, please visit www.aifst.asn.au.



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The contract blender needed an automatic, centralised printing system for its seven production lines, to ensure detailed information and delivery accuracy for customers on its continually expanding SKUs. The company wanted a cost-effective, easily expandable solution that removed paperwork, increased productivity and accuracy, and enabled it to deliver on the best possible customer service - now and into the future.

"With those ever-increasing SKUs has also come growing demand from our customers for more detailed information and accuracy on delivery," explained Roman Eydlish, Maltra's operations manager.

"So we needed a centralised printing system, and on top of that, we also wanted to move from a paper-based system to an automated one so we could use standardised printing formats, reduce operator error and improve consistency, thereby increasing our overall efficiency and productivity."

With three existing Linx continuous inkjet printers (CIJ) from Matthews Australasia - the latest being a CJ400 - coding best-before and batch numbers onto foil pouches of powder, Maltra approached Matthews for a coding solution.

Matthews recommended a Viacode Hi-Resolution Printer; at the same time, the blending specialist also installed a SAP ERP system.

Maltra has seven processing rooms, and each needed coding facilities, so Matthews installed a print-head in each room, with all seven networked to a single, centrally located controller. The Viacode solution can also be simply expanded in the future, as Maltra grows, to add more production lines.

Roman Eydlish says, "The Viacode Hi-Resolution Printer can print in a two-line format, doing it all from the convenience



Maltra Foods needed a centralised printing system and wanted to move from a paper-based system to an automated one so it could use standardised printing formats, reduce operator error and improve consistency, thereby increasing its overall efficiency and productivity.



Along with ever-increasing SKUs and growth, Maltra Foods' customers were also demanding more detailed information on cartons.



Each of Maltra Foods' seven processing rooms needed coding facilities, so Matthews installed a print-head in each one, with all seven networked to a single, centrally located controller. The Viacode solution can also be simply expanded in the future, as Maltra grows, to add more production lines.

and security of a centralised library. This helps reduce the threat of data loss, while providing the freedom to print additional information on all products."

The printer is located at the end of the production line, following the automated box-erecting machine, and codes onto carton surfaces. Maltra Foods uses it daily across one or two production runs, with a current throughput of 70-100 items/min. The information coded includes: best-before codes, batch numbers, Julian codes, reference numbers, establishment numbers and product names.

Quality assurance manager Charik Urencio says staff find it easy to use, adding, "This system makes my life easier - that's one less item I have to be concerned about in the production process."

Roman Eydlish says for Maltra Foods, investments in solutions such as the Viacode Hi-Resolution Printer are not just about increasing accuracy, reducing risks for operational errors or even productivity. "It's about keeping a promise made to clients that it will provide and deliver the best service possible - now and into the future.

Matthews Intelligent Identification Pty Ltd
www.matthews.com.au

Thermoform, fill and seal machine

The TFC 5532 thermoform, fill and seal machine with labelling system from Bosch Packaging Technology offers a high output and design flexibility for hygienic packaging applications.

It is suitable for liquid and viscous foods such as yoghurts, desserts and fresh products which require extended shelf life. The machine's extended 4x6 cup configuration enables an output of up to 43,200 cups/h and handling of various cup sizes ranging from portion packs to dessert cups.

The machine is available for clean and ultraclean hygienic packaging. In addition, it can handle hot-fill applications and products with particulates of up to 25 mm in diameter.

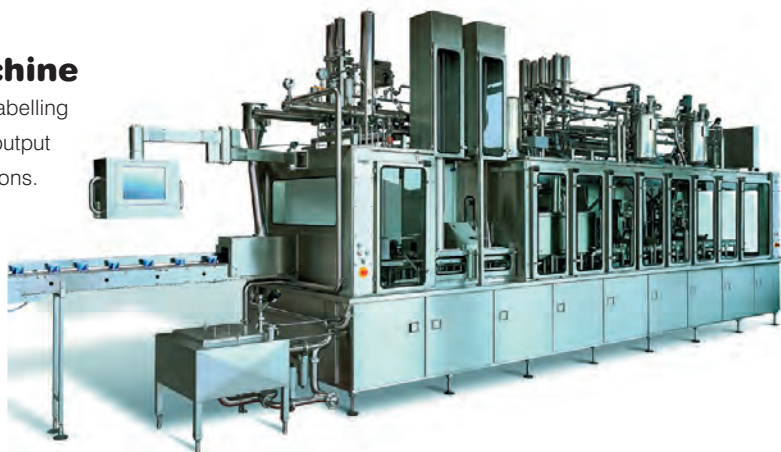
The TFC 5532 includes Bosch's patented in-mould labelling system, which minimises the machine's space requirement. In one step, 24 single labels are created and fed in parallel into the machine. The system also enables tool-less changeovers to allow more flexible production and short downtime.

The machine's ergonomic, compact design and low height facilitate access to all parts, simplifying cleaning and maintenance. Its hygienic design is further enhanced with the positioning of drives above the cup transport area.

A semi-enclosed tunnel with overpressure of filtered air maintains the required hygienic level during product filling to avoid recontamination.

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Entry-level thermoforming packaging

Multivac's R 085 entry-level thermoforming packaging machine can be used for running both flexible films and rigid films. So it is suitable for packing non-food products as well as food.

The model is aimed at companies which want to embark on automatic thermoforming packaging. The machine can be ordered with four standard format layouts. It is suitable for packing both sliced products and individual items. The R 085 can be used to produce packs with inert gas as well as vacuum packs, so that users can also meet the requirement for extended shelf life for their packaged products. With its thermoforming depth of up to 80 mm, the R 085 provides a whole range of possibilities for pack design. Electric drives are used for both the lifting units and the transport chain; this means that the R 085 also fulfils the requirements for improved energy efficiency.

The R 085 is equipped with the IPC 06 machine control as well as the HMI 2.0 user interface with 12.1" touch screen. The HMI is integrated in the control cabinet, and it ensures simple and ergonomic operation of the machine. The R 085 also has a quick-change system for forming and sealing dies with proven slide-in technology, which is integrated as standard in the die design. This makes it easier to convert the machine to other formats.

The R 085 can be cleaned easily on the inside and outside.

Multivac Australia Pty Ltd
www.multivac.com.au

Lidding film range

EOP lidding films are available through ERC Packaging. The multiuse films offer sealability to a variety of container types including PP, CPET, PVC, HDPE and other laminated materials.

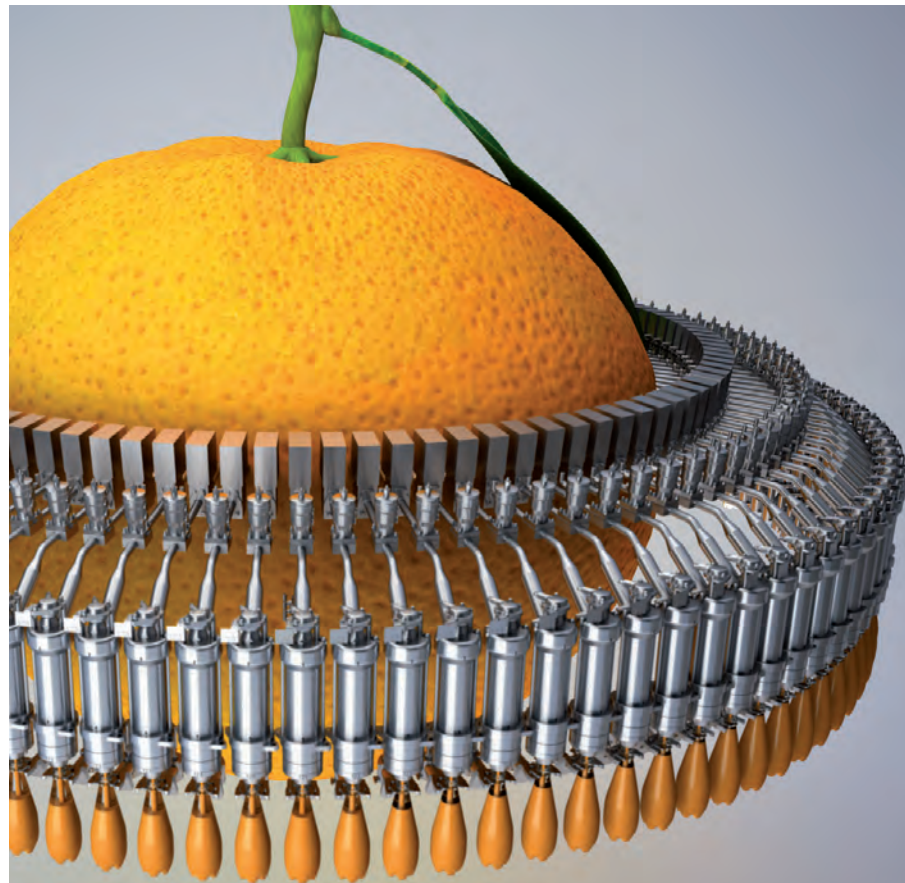
The films are suitable for sealing at a range of sealing temperatures and dwell times, and, with simple adjustments, can be used with a range of machinery. The films have good strength and clarity with a clean peel, with no tearing or propagation of the film left on the container, the company says.

The food-grade approved films are microwavable and ovenable. They are available in three gauges, making them suitable for a range of applications.

The film can be supplied in plain or printed form, as well as an off-the-shelf generic roll. Rolls are slit to size, so small orders are possible for either the clear or generic print film.

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Prototype proves its worth



In the tiny town of Stans in the Tyrolean mountains, the A Darbo AG company creates jams and jellies made to centuries-old Austrian recipes and with natural ingredients. Despite the company's focus on the traditional, its processing practices are anything but: the company became the world's first food producer to invest in a Viscofill from Krones to fill its premium product into jars.

"We want to get the products to the consumer in as natural a state as possible, because what nature gives us - fruit and sugar - is a perfect food just as it is; you don't need to mess around with it really," Board Chairman Martin Darbo said.

"We always invest in quality - starting with the raw materials, plus the personnel, all the way through to the kit in our plant," said Adolf Darbo, Martin's uncle, who is responsible for the engineering remit on the Board.

Nearly 50% of Darbo's production output is exported. The high proportion of export is due primarily to an idea that Martin Darbo's grandfather had: to fill portion packs for the catering trade. Nowadays, the characteristic 28-gram miniature jars can be found in hotels and restaurants around the globe.

In its production operation, Darbo prefers technology that underlines the products' natural purity. When it came to upsizing filling capacities, the company opted for the Viscofill from Krones. The machine is the prototype of a new filler family developed for viscous, thread-forming foods and those containing chunks.

The machine is a classical piston filler which has a number of design advances that enable it to fill even hard-to-handle products like jam containing large chunks or whole fruit, gently and without dripping. Viscofill reportedly transfers these products into jars

undamaged, without leaving behind any splashes of product on the neck finish.

Since the filler's food and drive areas are hermetically separated from each other, there is no risk that product residues will penetrate the machine. Like the filling function, cleaning of the Viscofill has also been automated, requiring no manual interventions. For this purpose, the filler turret's components automatically move away from each other until all parts coming into contact with the product are exposed. A tilted table trough made of stainless steel collects flushed-off product residues and cleaning media, and removes everything via a central drain, thus keeping even the floor of the hall clean.

Andreas Kofler, head of the filling operation at Darbo, had already experienced a variety of filler models produced by a number of manufacturers. "The difficult thing is that piston fillers suitable for our application range had hitherto been built solely by relatively small companies," Kofler said. Even though, in 2012, the Viscofill was still in the development phase, Kofler saw it as an opportunity rather than a risk.

"Over the years, we have ourselves accumulated quite a fund of expertise in this regard and we've also built a filler in house. We were able to input our empirical findings directly into this project, and we're admittedly proud of this," Kofler said.

The Viscofill isn't the first prototype Darbo has purchased. The company purchased a Taxomatic in 1988, which was developed to put a coated-paper label over the jam jar's lid like a piece of fabric.

"It took quite a while until we'd finally got the recalcitrant paper to remain stuck to the paraffin film applied to the lid, and not to bounce back up again like a sort of 'wobbly man'. But once we'd managed it, it's been running without any problems for 25 years now!" Adolf Darbo remembers.

The company's miniature jars also feature this label, with the delicate 12 mm-wide labels applied by a labeller from Krones. "As far as labelling is concerned, we work exclusively with Krones machines," Adolf Darbo said.

"Our confidence in Krones was not disappointed. For us, quality is the most important criterion for any investment. And not only do we feel we are being listened to by Krones when we explain our requirements, we're also certain we're in good hands with them," Darbo said.

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Long ionising bars

Exair's Long Ionizing Bars reportedly eliminate static electricity on paper, film and plastics that are up to 2438 mm wide. Static electricity can attract dust and foreign materials, spoil product appearance and lead to jamming or tearing.

The profile of the electrically powered ionising bar is compact, allowing it to fit in the confined spaces of machinery where the static charge is generated. A high concentration of positive and negative ions produces fast static decay, neutralising surfaces within 51 mm of the bar.

The long length of the ionising bars allows them to be used across large production lines. According to the company, the design of the shockless bars offers improved performance and reliability in industrial applications.

The company claims that life expectancy has been extended by insertion-moulding the stainless steel ion emitters into a durable plastic.

Attaching an Exair Super Air Knife to the ionising bar can improve its ability to reduce static. The air knife delivers more ions and is effective from a greater distance, making it suitable for high-speed, high-charge applications. Air delivery can also remove dust and clean the product surface.

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Five tips for selecting coding and labelling equipment

1. Discuss and evaluate all aspects of the application

No single solution will be suitable for every application. To ensure the codes and labels remain intact and legible, make sure you know exactly how your product will move through the supply chain and how your customers will store your product.

Apart from the basic application details like line speed, product substrate/surface, message, message format etc, key questions to ask include:

How will your customer store the product?

Whether your product is destined for the fridge, freezer, microwave or can be left out in the sun all day, it's important to ensure the labels and codes remain as clear as the day they were applied.

How long will the product remain on the shelf?

Labels and codes need to remain legible for at least as long as the product is on the shelf - and ideally for as long as it's in the consumer's keeping as well.

How long will the consumer retain the packaging?

Is the product designed to be consumed in one sitting, like a chocolate bar, or might it sit in a cupboard for weeks or even months, such as UHT milk?

For carton labelling, consider direct transfer vs thermal transfer labels:

- SystemSuitability Direct transfer Suits products with less than 12 months' shelf life (label doesn't need to last long).
- Print fades after about six months and does not handle heat, humidity, sunlight and direct friction.
- Ideal for perishable products.
- Thermal transfer Suits products likely to endure friction, temperature changes or dampness.
- Print is also resistant to chemicals, humidity, UV rays and abrasion (label needs to be more durable).
- System offers higher print speeds.
- Ideal for products to last more than six months, such as 'long-life' goods.

Some other questions that need to be answered before you can make a choice are:

- Are you looking for equipment for one production line or will it be moved to other lines as well?
- What is the range of products that the equipment needs to code?
- What is the physical space available for the coding system?
- What is the current process? And will it need to be modified?



You also need to consider legal and compliance requirements, if any, as directed by the government, standards organisations as well as your customer.

2. Ascertain message and legibility criteria

The message you need to code will depend on the product itself, any legal requirements and any internal traceability needs you have. So it could be just a simple date/batch code, an internal barcode or a more complex date/batch code plus a nutrition and ingredients panel.

Unsurprisingly, different systems do different things better than others. Whether your product requires only a simple numeric code or a longer, more complex message will determine which system is best for you. Consider these points:

Does the code have to conform to strict legibility standards?

Some codes have well-defined guidelines. Pallet labels are a good example, with very specific formatting and rules defined by GS1, as well as retailers, which enables the smooth flow of product through the supply chain.

Does the code need to be scannable?

Whether it's directly coded or on a label, an unscannable barcode not only wastes time at the cash register or warehouse, it

can have costly implications for the supply chain - and many retailers are intolerant of products that cause scanning errors.

Is your container a dark colour?

Legibility can be an issue on dark containers; some ink colours are just too difficult to see, in which case you'll need a light-pigmented ink to ensure your code is legible. But even if you don't have a dark-coloured container, it's wise to take into account whether your packaging colour or substrate may change in the future, and if so, you may need to consider a coder that can code with lighter pigments.

Does your code or information need to be indelible?

Some coding needs to be indelible - for example, that on food products. Indelible coding won't fade, run or be rubbed off during normal conditions of use and storage. Depending on your application, laser coders or continuous inkjet (CIJ) coders or thermal transfer overprinters (TTOs) could be a good choice.

3. Look at various options to achieve the same result

CIJ vs TTOs

CIJ and TTOs, for example, will give similar results - but which will work best for your situation?

In CIJ printing, tiny, electrically charged droplets of ink are expelled from a print-head nozzle to form a character or pattern. It is a non-contact form of printing which permits coding on a range of sizes, shapes and substrates.

A benefit of CIJ printers is their wide range of printing speeds, extensive substrate adhesion compatibility and ease of installation. Be aware, however, that CIJ printers require regular maintenance and housekeeping, plus a supply of ink and solvent consumables.

CIJ can code variable information and is suitable for:

- product-identification codes
- batch numbers and date codes
- graphics, such as logos
- text, including upper and lower case, and large characters

TTOs are suitable for coding on flexible packaging films and self-adhesive labels. A thermal print-head melts ink based on wax or resin from a thin thermal transfer ribbon coating onto the substrate to be printed. TTOs are most commonly used in the snack food, confectionery and fresh produce sectors.

TTOs are often used for printing simple date and batch codes, but can also be used to print:

- logos
- product descriptions
- ingredients lists
- nutritional panels
- fully compliant barcodes

Laser vs inkjet

As in the comparison above, inkjet and laser technologies perform a similar end result, yet one could never completely do the job of the other, nor fully replace the other.

The initial money you hand over when buying new equipment isn't all you'll end up paying. Be sure you also consider direct, indirect and hidden costs.



Rapid advancements have widened laser applications to the point they can now mark clear and legible barcodes; while changes in inkjet technology continue to be incrementally steady - for instance, improvements to two of its former weaknesses (maintenance and ongoing consumable costs) have made those points its strengths. Laser technology has a higher capital cost, but a major strength is its lower operational costs - no consumables - making it a cost-effective solution over time.

So which is better for your application?

Laser technology:

- creates a very sharp, indelible mark, and is often used for aesthetic purposes;
- is most suited to high-volume applications, typically those operating two shifts a day with production rates higher than 100 products/minute;
- can mark fully compliant barcodes on secondary packaging when coupled with laser-reactive inks preprinted on the packaging substrate (while ink costs are higher, savings can be made with generic cartons);
- can also mark flexible packaging material where no special laser field exists - the original field for a small character inkjet code often suffices - so can be used on snack food and confectionery packaging (this applies to fibre YAG lasers only, not CO₂ lasers);
- other applications include food, beverage, cigarettes and pharmaceuticals through to heavy industry.

Inkjet technology can code on primary and secondary packaging (including fibre cartons and shrink wrap) to code:

- date and batch codes
- human-readable text
- graphics

The best hi-res inkjet printers can print scannable barcodes (although Australian grocery retailers are not in favour of GS1-128 or ITF-14 barcodes printed with any inkjet technology directly on shipper cartons).

Applications vary broadly across sectors, from food and beverage, to pharmaceutical and cosmetics, through to automotive and timber.

4. Look beyond upfront cost when researching

The initial money you hand over when buying new equipment isn't all you'll end up paying. Be sure you also consider direct, indirect and hidden costs.

Direct costs include consumables, routine maintenance, corrective maintenance, spare parts and installation costs.

Indirect and hidden costs include downtime if equipment fails, downtime due to routine maintenance, operator training and cost of disposal to name just a few.

5. Analyse available support, operating costs and maintenance procedures

Available support

Buying cheap equipment from overseas might seem like a good idea while it's working well, but once it runs into issues, you might start wishing you'd bought from a local distributor. What you save on the purchase price can be very quickly eaten up in lost production, spare parts, the cost of corrective maintenance (particularly if return-to-base repair is required) and labour costs.

Then there's the frustration of dealing with a manufacturer in a different time zone, manuals translated from another language into English (losing some of the meaning along the way), conflicting public holidays and so on that could see your downtime further blow out.

Operating costs

Consider the costs of things like consumables, power, disposal of waste, routine maintenance, servicing and labour costs associated with set-up and changeover.

Particularly for small operators, a single machine may be called on to code or label for a range of products, each with different information, sizes and colours. As we know all too well, time is money, so if changing over the set-up for different products is difficult, perhaps it's not the best one for your purposes.

Maintenance procedures

Some points to consider:

- Maintenance frequency: How does this fit in with your planned maintenance schedule?
- Who does the job: Can your staff be trained to carry out maintenance in-house, or will you need to pay for - and organise - a technician from the manufacturer or distributor?
- Accessibility: Does the entire machine need to be taken to pieces to maintain or replace a single part, further blowing out your downtime? Or does it contain drop-in/drop-out components, which can save both downtime and a technician's fees?

Whenever your labeller or coder is out of action, the entire production line grinds to a halt, or builds up as a backlog. Do your research on new equipment before you purchase - or risk being caught out when you need your line to be up and running.





There are many other factors to consider like total cost of ownership, reliability, ease of use and local support. Talk to us, the experts in Product ID and inspection solutions to discuss your application.

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Label applicator

Label Power is distributing the Primera AP550 Label Applicator on the Australian market.

The AP550 is a semiautomatic label applicator that applies product and identification labels onto a range of flat surfaces such as rectangular or tapered bottles, boxes, packages, bags, pouches, lids and tins.

It comes with functions such as variable spacing, memory for up to nine jobs and a counter with built-in LED display, which has an up/down counter for labels dispensed and applied. No air pressure supply is required.

The applicator can apply labels at speeds of up to 500 labels/h. It is suitable for use with labels produced by Primera's LX- and CX-Series colour label printers and digital label presses, but can be used with a range of labels, including clear labels.

Left or right justification of labels is not necessary; the operator can adjust to a more convenient position.

Label Power Pty Ltd

www.labelpower.com.au

Laser sorter

The Python laser sorter from Key Technology removes foreign material (FM), extraneous vegetative matter (EVM) and defects based on size, shape, colour and structure.

Python combines laser sorter features with complex shape recognition via its transparent, backlit chute. According to the company, this design allows for crisp analysis of complex contours as well as any combination of length, width, ratio and area.

The backlit chute is based on Key's proprietary Chycane chute, which feeds product in a monolayer with a consistent trajectory to the laser optics and ejection valves. This reportedly maximises sorting and ejection efficiency.

The chute-fed sorter offers a small footprint, low maintenance with no moving parts, a sanitary design and an easy-to-use graphical user interface (GUI). It is constructed of full IP65-rated stainless steel.

It is suitable for fresh, dried and frozen fruits as well as nuts and confections.

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Cooling water systems upgrade attracts funding

In October 2012, Cormack Packaging commenced a systematic replacement of its manufacturing plant process cooling water systems.

Like many manufacturers, Cormack had relied on two process water systems to supply cooling water to the injection moulding plant: ambient temperature water sourced and delivered from a series of old inefficient cooling towers, and chilled water sourced and delivered from a remote single centralised chiller.

These traditional methods of generating process cooling water have several inherent inefficiencies and risks. Cooling towers cool by evaporation, therefore generating considerable water losses, and by design are breeding pits for *Legionella* bacteria. As such, all cooling towers require high levels of chemical treatment and must be registered and regularly inspected by local authorities.

Centralised chiller systems are generally inefficient because only one process water temperature can be delivered to the entire plant, and large pumping capacity is required whether all or only some of the plant is in operation.

Cormack undertook a thorough evaluation of the inefficiencies of its process cooling water systems and determined that replacing this old equipment with new, fully closed loop Frigel cooling equipment would generate sufficient energy savings to obtain a funding grant for the equipment from the AusIndustry Clean Technology Investment Program.

The new process cooling water systems were procured from Frigel Asia, a company specialising in the manufacture of adiabatic closed loop coolers and compact process water refrigeration units.

The system is composed of an adiabatic cooling unit which replaces the old cooling towers. This EDK unit operates like a giant car radiator, taking warm process water from the plant and passing it through a series of closed heat exchangers where the heat is drawn from the water by variable speed fans. There is no

evaporation or loss of water like in old cooling towers.

Replacing the old centralised chiller are compact, individual chillers which are installed on each individual piece of plant equipment. These compact individual chillers gain efficiency as they can be switched off when individual items of plant are not running production. These chillers are also cooled by the EDK system.

The entire process cooling system is closed loop, preventing water loss and reducing chemical consumption. Risk of *Legionella* bacteria is eliminated and energy savings are gained due to the flexibility and nature of design.

Having installed the new systems, Cormack is now enjoying the benefits.



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Interview with Pierre Pienaar MSc FAIP, Director, Packtech Solutions

I joined the AIP in 2003 and became a Fellow in 2005. I am extremely blessed and will be eternally grateful to the Australian packaging industry for being so accepting of me when I first entered the industry in 2001.

My company is reliant on me staying ahead of today's issues, technologies and innovations in packaging. The AIP provides the guidance and the resources that I require to succeed in packaging, both today and in the future. I am recognised as a dedicated professional member of the packaging profession by my peers.

It is a rare product than can be separated from its pack when considering the power of packaging to sell a product. Cost is the top factor driving our industry today and the biggest driver of cost is packaging design. More and more emphasis will be placed on designing with the end in mind, be that sustainability, standardisation, rationalisation, food safety, recyclability and the perceived 'greenness' of packaging. For me it all revolves around the actual design of the packaging. So much can be driven at the design stage, keeping the end of the life of the package in mind.

Education in the industry is paramount to me, not only here within Australia but beyond our borders in the international community. My intention is to promote professional standards of competency through education and training and, at the same time, to advance and promote the standing of packaging specialists as a profession.

As a packaging technology consultant, I frequently hear about the shortage of skilled people in the packaging industry, particularly those with a formal education in packaging.

My advice to those starting in the industry is to become packaging-educated. We need to provide people with educational opportunities today to meet the demands of the workplaces of tomorrow. Education is for life - it is an investment that cannot be lost, spent or taken away.

My greatest achievement in the industry is being able to give, in some small way, something back to the industry that has given me so much. My aim is to serve our industry through education until I am no longer able to do so.



Pierre Pienaar MSc FAIP is a past national president and Queensland chairman of the AIP. He is currently the education coordinator of the AIP.

Australian Institute of Packaging
www.aipack.com.au



Aseptic carton pack

Tetra Pak has launched the Tetra Brik Aseptic 250 Base Crystal. With two crystal-shaped panels on the front side of the Tetra Brik Aseptic, the package provides customers with additional graphic design possibilities.

According to the company, the product performed strongly in terms of package design, visual appeal and functionality in consumer research.

With an increased stiffness of the packaging material, the package shape enables retailers to stack and distribute packages efficiently. In addition, it has a higher paper content and increased use of renewable products.

The pack can be retrofitted on existing TBA/22 fill-ing lines.

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Small cavity stretch blow-moulding machine

The most recent generation of Krones' Contiform 3 series enables small cavity (SC) machines to produce up to 81,000 PET containers per hour, the company claims.

The high-speed, stretch blow-moulding machine for containers up to 750 mL is fitted with a blow-moulding station that operates without the need for lubrication. This reduces the time needed for manual lubrication by 70% compared with the preceding model, and minimises operating costs.

It is possible to synergise individual machines to form integrated units, in order to minimise the complexity of production lines and upgrade their efficiency levels.

With the wet-end monobloc ErgoBloc L, the company has integrated the technology of the Contiform 3 Small Cavity stretch blow-moulding machine for small containers with Contiroll labelling technology featuring a Multireel automatic reel magazine plus fillers from the Modulfill series to create a synergised overall concept. The individual machines were optimised beforehand and mutually networked using an intelligent control system.

Using these design enhancements, the ErgoBloc L offers operating costs up to 10% lower than for conventional bottling lines, the company claims. The monobloc's footprint is also reportedly 30% smaller than conventional bottling lines.

Krones (Thailand) Co Ltd

www.krones.co.th



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Packing beverages to succeed

If you want to sell your product successfully, you have to make it stand out. This applies particularly to the embattled beverage market. The times when mineral water, beer and schnapps were sold in standard bottles are long gone. Thanks to the unstoppable rise of alcoholic mixed drinks and aromatised soft drinks, beverage diversity has become almost overwhelming. Without professional brand building and a communication strategy that turns a brand into a 'must-have', beverage launches have little chance of success.

"The general goal is to create a visual vocabulary that can be seen, felt and understood within five seconds or less," explains brand expert Terri Goldstein of The Goldstein Group, a US marketing company.

For example, Dortmund Brinkhoff's brewery is appealing to local, Ruhr district patriotism to market its Brinkhoff's No. 1 beer. The company has combined a slogan, 'As real as knowing where you belong', with labels that show 40 different sights from 21 Ruhr district towns. The special, peelable labels carry a description of the pictured sight on their reverse. "Our edition has really gone down well," says Brinkhoff's marketing manager Andreas Thielemann.

While Brinkhoff's with its home-region labels chooses a relatively low-key vocabulary, other beverage manufacturers are taking more elaborate measures - by embossing brand names in the bottles and using colours and memorable motifs so that no two bottles are the same. Individualisation is the name of the trend that is growing in popularity in the beverage sector.

A bottle for every occasion

One of the pioneers of this trend is the Swedish company Absolut Vodka. In 2012 it launched its Absolut Unique series, a limited edition of four million glass bottles that are both colourful and unique because no two bottles are alike. To enhance this effect, each bottle bears its own number - like limited prints of a work of art. Consumers love this, and Absolut Vodka now ranks among the most popular distilled beverages worldwide.

The trend towards uniqueness can also be observed with multiway bottles. Every major beverage manufacturer uses individualised containers today in order to appeal more directly to target groups. Beverage manufacturer Sinalco, for example, has introduced a 0.5 L multiway bottle for its lemonades so that it can access smaller households. For its part, Staatl. Fachingen in Hesse markets its mineral water in special faceted bottles that it sells in three different sizes exclusively to restaurants.

However, although individual beverage packages generate higher sales, they have their drawbacks. Elaborately designed bottles drive up development and production costs and burden the environment. To counteract the littering of towns and the countryside, countries like Germany have set themselves the goal of high re-use rates in the beverage package sector. The growing share of individualised multiway bottles is encouraging the opposite, however: return rates are falling, transport distances from the bottler to the consumer are growing and the life-cycle assessment of multiway bottles is deteriorating. All the same, individual bottles are often lighter than comparable standard multiway bottles, which offsets this effect to some extent. Nevertheless, the growing diversity of bottles is increasing the complexity of sorting and pushing up costs.

More and more beverage manufacturers are therefore reverting to one-way plastic bottles and cans. In Germany, the 'Bund Getränkeverpackungen der Zukunft' was even founded last year to advocate a renaissance of one-way bottles and cans. Its lobbying has evidently been successful, as, according to information from NABU (the German nature conservation organisation), the one-way package rate in Germany has al-



© seen/Dollar Photo Club

ready reached 50%, and the figure continues to rise. Benjamin Bongardt, head of resource policy at NABU, is concerned: “The environment only benefits when we choose the right beverage package solution and make it increasingly efficient. A single multiway bottle replaces up to 50 one-way bottles - and is additionally recycled at the end of its life. One-way is therefore synonymous with active resource wastage.”

Package manufacturers are therefore faced with major challenges. How can they make containers even more attractive and consumer-friendly? And how can they conserve resources and go easy on the environment at the same time? The performance profiles of packaging machines are also becoming more exacting: “We have to think about how bottlers can boost the energy efficiency and eco-friendliness of product packaging at lower cost,” says the product manager, Jochen Forsthövel, of Bavarian filling technology and packaging machine manufacturer Krones.

Saving materials on a broad front

One of the main focuses at Krones, for an example, is to develop PET bottles and in doing so cut down on valuable material. The company's new 0.5 L ‘PET lite 9.9’ carbonated bottle weighs only 9.9 g - about a third less than conventional PET bottles of this size. The container's special design nevertheless ensures that it stands firm and can be safely transported. Krones is also innovating with PET bottles that can be filled with hot product such as fruit juice. These bottles usually have to have a stronger design as they readily shrink on exposure to heat. Krones' NitroHotfill process keeps containers stable during filling by raising the internal pressure with nitrogen.

“We can thus achieve weight savings in both the bottle body and mouthpiece,” explains Forsthövel.


French manufacturer BTC Concepts is taking a different approach. By screwing three individual bottles together to create a single large one, the Paris company has created a three-in-one container whose innovative design alone sets it apart from other bottles. The BottleClips concept also conserves resources, as the bottles save storage space and hence fuel during transport. The consumer for their part wastes less product, as the three bottles are opened one after the other.

Cost-cutting innovation can be found not only in bottle design, production and filling, but also in downstream labelling. Krones' DecoType direct printing system is capable of embellishing uneven surfaces with a digital inkjet process - so there is no need for a special label and the associated adhesives materials. But this does not mean the end of classical labelling. Here, too, there is huge innovation potential, as the Italian specialist PD Labellers is demonstrating with its new Adhesleeve rotary labelling machine. To save energy, the machine operates with acrylic adhesive to bond the labels instead of a hot-melt adhesive. PE Labellers also claims that Adhesleeve is capable of using labels 30% thinner than conventional ones.

KHS's INNOPACK Kisters TSP A-H-TPFO packaging machine is capable of packaging PET bottles in fully enclosed packages. The advantage of this is that these packages are stronger than current conventional shrink packs, thus ousting extra cardboard trays for stability and reducing the input of

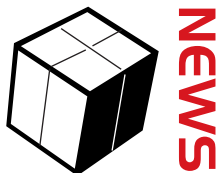


Saving energy, modern labelling machines need less and less electricity by dispensing with energy-intensive thermal processes like hot gluing. (Photo: Krones)

materials. The wraparound shrink packing process for packages can also be performed in a shrink tunnel with either electric or gas heating. There is also an energy-saving package that can be optionally integrated in any shrink tunnel variant. Here, a roller shutter system automatically closes the opening for product inlet and outlet during packaging machine stoppages to facilitate extra energy savings of up to 20%. 

INTERPACK
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Packaging



Plastic overtakes metal in beverage closures

Plastic beverage caps and closures narrowly overtook their metal counterparts in 2013, gaining the largest share of the global market for beverage closures. In 2007, metal closures held 51% of the market; in 2013, metal closures held 48% of the market, with plastic closures holding 49%, a new report from Canadean shows.

The growth in plastic closures is primarily motivated by a shift towards more innovative, lightweight, cost-saving packaging. Canadean predicts that the gap between plastic and metal closures will continue to widen, with plastic closures expected to hold 52% of the market by 2017.

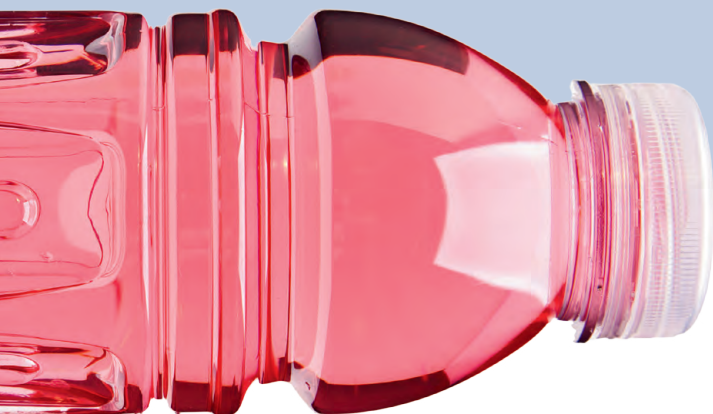
Lightweight packaging in general has been a strong trend in the beverage industry as suppliers strive to develop products to satisfy both environmental and cost concerns.

"Plastics closures crossed a critical threshold last year in overtaking the share of their metal counterparts across all CPG end markets," said Dominic Cakebread, Director of Packaging Services at Canadean.

According to Cakebread, the recent growth of plastic closures has been driven partly by the associated gain in share of plastics containers and partly by further advances in closure design, materials and systems.

"These have been focusing on reducing polymer weight and cost, while maintaining or improving technical performance and convenience features. It is the greater flexibility of plastics to adapt to the changing demands of the closure market that give them their ongoing advantage."

This information is based on findings from the Canadean report 'Innovation in Caps and Closures', which was published in November 2013.



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Markem-Imaje acquires Heidelberg CSAT

Markem-Imaje has acquired Heidelberg CSAT from Heidelberg Druckmaschinen. The acquisition is effective from 1 January 2014.

Based in Eggenstein, Germany, CSAT is a leading manufacturer in printing systems for the pharmaceutical and labelling industries. Serge Kral, Markem-Imaje's president, says the acquisition will expand the company's technology portfolio and broaden the market reach of CSAT's solutions.

"This acquisition is part of Markem-Imaje's focused strategy to broaden our technological expertise, expanding our ability to exceed the expectations of existing and new customers with ever more specific, effective solution sets delivered by our vast global sales and service network," said Kral.

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AUSTRALIAN INSTITUTE OF PACKAGING

The Australian Institute of Packaging (AIP) has issued a 'save the date' notice for the biennial AIP National Conference, to be held on 17 and 18 June at the Sofitel Wentworth in Sydney.

With a theme of 'Packaging and Innovation Excellence', the event is designed for everyone in the packaging industry, from packaging designers, technologists and engineers to sales and marketing professionals.

The conference is the largest packaging conference of its kind in Australia and New Zealand and is run by industry for industry.

Speakers have been confirmed from a range of high-profile companies, including Mondelez International, Kimberly Clark, Campbell Arnotts, Heinz, LION, Sunrice, Coca-Cola, Nestlé, Diageo, Simplot, OI and Amcor Flexibles.

Conference partners include Amcor, Innovia, Confoil, JL Lennard, Laser Resources, Loscam and Metalprint.

For more information, email info@aipack.com.au or visit www.aipack.com.au.

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Europe looks at meat transportation, storage and the cold chain

The maintenance of the cold chain is one of the basic tenets of food hygiene. From raw ingredients through to finished products, foods should not be kept at temperatures that facilitate the growth of pathogenic microorganisms and so pose a risk to public health. In Europe, legislation lays down specific requirements for the storage and transport of meat regarding temperatures and maximum times of storage.

Following a request from the European Commission, the European Food Safety Authority Panel on Biological Hazards was asked to deliver a scientific opinion on whether or not it was possible to apply alternative core temperatures (higher than the current requirement of 7°C in Regulation 853/2004) in combination with specific transport durations for meat (carcasses) of domestic ungulates after slaughter without increasing the risk associated with the growth of pathogenic microorganisms. It was also requested that the panel recommend, if appropriate, combinations of maximum core temperatures for the loading of carcasses and maximum transport times.

To fulfil this mandate, the first stage was to establish the key parameters that affect bacterial growth on beef, pork and lamb carcasses and to identify the key pathogens that should be included in any consideration of the effect of chilling temperature on microbial growth. From the scientific literature it was established that the key determinants of growth on meat

were temperature, pH and aw, although other factors such as competition from other microorganisms might also be a factor.

As viruses and parasites do not grow on meat, the most relevant pathogens are bacterial. *Salmonella* spp. and verocytotoxigenic *Escherichia coli* (VTEC) were identified as the most appropriate target organisms based on their 'high' priority ranking in the recently published EFSA opinions on meat inspection. *L. monocytogenes* and *Y. enterocolitica* were also included because of their ability to grow at chill temperatures.

Current legislation, Regulation EC 853/2004, requires that carcasses be immediately chilled after post-mortem inspection to ensure a temperature throughout of not more than 7°C in the case of meat and not more than 3°C for offal. In practice, therefore, the temperature in the deepest carcass tissue (core temperature) must achieve a minimum of 7°C. It is unclear as to why this target temperature was selected as pathogens such as *L. monocytogenes* and *Y. enterocolitica* will grow at 7°C. The absence of a time limit by which the 7°C core



As the vast majority of bacterial contamination occurs on the surface, the carcass surface temperature and not the core temperature is a key determinant of bacterial growth.



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temperature must be achieved also introduces the possibility that carcasses could be held at temperatures that support the growth of pathogens such as *Salmonella* spp. and VTEC for extended periods while still complying with the legislation.

More important for the mandated tasks was the focus on the temperature throughout the meat including the core, rather than exclusively on the surface temperature. As the vast majority of bacterial contamination occurs on the surface, the carcass surface temperature and not the core temperature is a key determinant of bacterial growth. *Salmonella* spp. and *Y. enterocolitica* may also colonise lymph nodes but there is no evidence to suggest that either multiply in lymphatic tissue during carcass chilling. It was, therefore, agreed that the carcass surface temperature should be the focus of this mandate.

Beef, pork and lamb carcasses may be chilled using air or spray chilling methods. Blast chilling may also be used for pork carcasses, where the rapid decrease in carcass temperature does not adversely affect the quality of the meat. Regulation (EC) 853/2004 mandates that the target temperatures should be achieved before transport and remain at that temperature during transport. However, in cutting rooms attached to slaughterhouses, meat may be cut and boned before chilling or after a period in a chilling room, following certain conditions. The statutory temperature limits must be maintained during cutting, boning, slicing, dicing, wrapping and packaging the meat by means of an ambient temperature of not more than 12°C.

By modelling the growth of *Salmonella* spp., *E. coli* (*E. coli* models were used to predict the growth of verocytotoxigenic *E. coli*, VTEC), *L. monocytogenes* and *Y. enterocolitica* on the surface of beef and pork carcasses using hypothetical chilling curves it was demonstrated that it was possible to apply effective carcass chilling regimes in the slaughter plant other than those mandated by 853/2004.

Furthermore, it was not essential that the chilling occurred in the slaughter plant as bacterial growth was related to the chilling along the continuum from slaughter to catering/domestic refrigeration. Transportation could therefore occur before a carcass target temperature was reached in the slaughterhouse chillers as long as the temperature continued to decrease towards that target during transportation.

In order to establish combinations of maximum surface temperatures for the loading of carcasses and maximum transport times, two baseline scenarios that represent the current situation were developed using temperature data from commercial slaughterhouses. The 'mean' baseline scenario represented

a situation where carcasses remained in the slaughterhouse chill room until a core temperature of 7°C was achieved and were then transported at a constant surface temperature of 4°C for 48 hours.

The 'worst-case scenario' baseline was developed based on worst-case surface temperature profiles (ie, temperature profiles that would support most bacterial growth) obtained during chilling to a core of 7°C followed by transportation at 7°C for 48 hours. The growth of *Salmonella* spp., VTEC, *L. monocytogenes* and *Y. enterocolitica* achieved with these baseline scenarios was then compared with that which would be obtained if the carcass surface was chilled to 5-10°C in combination with different transport times at surface temperatures of 5-10°C.

The outputs of this modelling exercise suggest that for each of the four pathogens, less growth in the slaughterhouse would be obtained with the time-temperature scenarios tested as compared to both the mean and worst-case baselines. Moreover, it is possible to develop different combinations of carcass surface target temperatures with specific transport time-temperature conditions that ensure pathogen growth is no greater than that achieved using the current chilling requirements (a core temperature of 7°C followed by no more than 48 hours of transport).

In conclusion, surface temperature is a more relevant indicator of the effect of chilling on bacterial growth than core temperature as the majority of bacterial contamination occurs on the meat surface. *Salmonella* spp., VTEC, *L. monocytogenes* and *Y. enterocolitica* are the most relevant pathogens when evaluating the effect of chilling of meat (carcasses) from domestic ungulates on microbial growth and associated risk to the consumer. The potential public health risk increases with the growth of these pathogens, which is affected by the continuum of chilling along the chill chain. It is, therefore, possible to apply alternative carcass chilling regimes, other than those mandated by current legislation (Regulation (EC) 853/2004) without incurring increased comparative bacterial growth. Different combinations of maximum surface temperature and maximum transportation times can achieve bacterial growth results equivalent to or lower than the current requirements.

The full article can be accessed on the European Food Safety Authority website at www.efsa.europa.eu/en/efsajournal/pub/3601.htm.



European Food Safety Authority
www.efsa.europa.eu

Effective Listeria Control

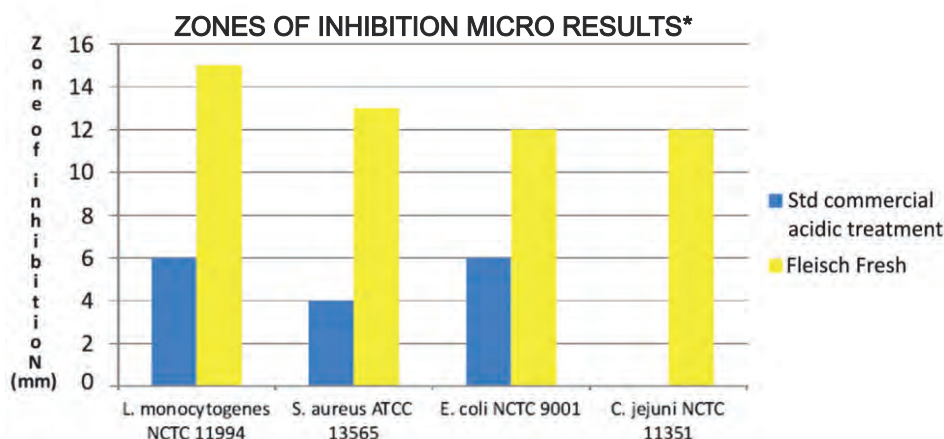
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Listeria contamination is an issue in Ready To Eat (RTE) modified-atmosphere chilled foods particularly processed meats.



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US profits, China struggles: Q1 2014 poultry outlook

Increasing grain prices, caused by political and climatic instability, are impacting the poultry market, according to Rabobank's Poultry Quarterly Q1. Margins in Q2 are likely to be affected by avian influenza outbreaks in China, the weakening Asian economy and feed prices, which are up 10 to 15% on earlier expectations.

"The effect on companies hinges on their regional market balance and longer-term forward hedging," said Rabobank analyst Nan-Dirk Mulder.

"A slowdown in global trade volumes and lower product prices, especially for leg quarters, will affect companies in international trade and lead to shifts in global trade streams. Brazil is likely to be affected the most, while Thailand is likely to benefit due to its recent return in the Japanese raw chicken market."

The US can look forward to a "very profitable" year, Rabobank analysts say, while the Chinese poultry industry is suffering after a second avian influenza outbreak in less than a year has impacted demand, with consumers concerned about the safety of poultry.

India is recovering from oversupply, but Japanese market conditions are bullish. The recent opening of Japan for Thai raw chicken continues to affect trade streams, Rabobank says.

With South Africa (the EU's biggest export market) considering anti-dumping duties and the EU considering opening its markets to Ukraine, Rabobank is predicting a further reduction in margins for the EU.



Fixing fishy fraud

Deliberate fraud or mislabelling of seafood has become an increasingly important global food security issue. Fraud can occur at any step within the supply chain from initial processing to local restaurant menus.

To overcome this, molecular diagnostic device company InstantLabs and the University of Guelph have entered into an agreement to co-develop a portfolio of DNA-based seafood species identification tests. They hope to have seafood identification test kits available within four months.

Producing results in less than two hours, the test kits will provide definitive proof that seafood is correctly labelled and help eliminate fish fraud.

Recent studies have shown that fraud could be occurring in 25 to 70% of requests for desirable species such as red snapper, wild salmon and Atlantic cod, according to a recent report by Oceana.

"We see the collaboration with InstantLabs as a critical step forward in bringing DNA-based food authentication testing to critical points in the supply chain," said Robert Hanner, PhD, associate professor at the University of Guelph and leader of a global project assembling a reference library for molecular identification of all fishes. Hanner will collaborate with Primary Investigator Amanda Naaum to develop the DNA testing technology.

The university is recognised for creating DNA barcoding, a technique that can be used to identify any species of plant or animal. The university is a founding member of the International Barcode of Life Project (iBOL).

Under Dr Hanner's leadership, the University of Guelph team has created the world's largest database of DNA sequences for seafood using barcodes to simplify testing and improve accuracy. Hanner and his team have worked with many global entities, including the US Food and Drug Administration, to combat seafood fraud. Through the partnership with InstantLabs, Naaum becomes the first individual to translate this research into a commercial product for seafood identification.

The new test kits will give importers, distributors and government customs agents as well as others in the seafood industry the tools to confirm species identification in less than two hours using InstantLab's easy-to-use Hunter Real-Time PCR system.

An industry-proven technology, the Hunter system is already used globally to screen for food-borne pathogens such as *Salmonella*, *Listeria* and *E. coli*. The portable Hunter system is also being used to detect contamination of food and consumer products with pork or horsemeat.

InstantLabs is represented in Australia by Arrow Scientific.

Gut washer improves tallow quality

Meat processor Thomas Foods International's Murray Bridge facility in South Australia has the capacity to process 5000 head of cattle and 52,500 head of lamb and mutton each week. The company recently installed a gut washer from CST Wastewater Solutions.

The latest gut washer technology washes and then flushes digested matter from animals' guts. Using the CST gut washer, Thomas Foods is able to produce a better grade of tallow, adding value for the company. Mutton and beef are washed at the Murray Bridge facility at a rate of approximately 10,600 kg/h from the abattoir's daily processing.

A standard industry practice, gut washing commonly uses 6-12 mm trommel screens, which simply drain the gut with no consideration given to washing. With the CST gut washer, however, the cut gut is fed via a transition chute to the rotary screen/gut washer, which consists of an external entry swirl chamber with two offset flanged recycled wash water inlets. The cut gut is then swirled with 10 times its volume in water. The swirl water can process water, including water from the kill floor and chiller.

On entry to the screen, this water is removed for further recycling before the solids are sprayed via the product wash sparge arrangement with fresh water before final dewatering occurs.



Close-up of the rotary screen component of the gut washer.

CST's gut washer uses a 2.8 mm wedgewire gap on the screen to optimise washing and flushing.

"Thomas Foods International is very happy with the performance of the unit and the efficiency it provides," said Peter Bambridge, CST Wastewater Solutions' sales manager.

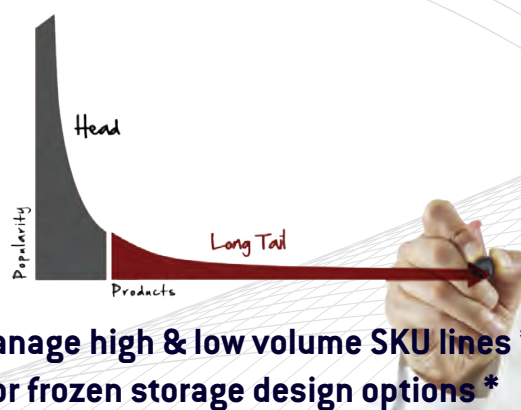
"The unit is made with guarding for safety and improves the downstream results, which is highly beneficial to Thomas Foods.

"The capture rate is much better and the washing results in a cleaner, higher quality product. This leads to more easily sold by-products such as tallow and meat meal."

CST Wastewater Solutions
www.cstwastewater.com

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Compact breading applicator

Heat and Control has reduced the length of its breading applicator. Sixty centimetres shorter than standard models, the Micro Breader Breading Applicator is suitable for use with a range of products including flour and crumb coatings.

Standard features include a lifter conveyor that adjusts the bottom breading bed density between firm and fluffy for different product applications and automatic belt tensioning that can help increase conveyor belt life. Interchangeable top hoppers and large clean-out enable fast changeovers between free-flowing and non-free-flowing coatings.

The Micro Breader can be supplied as part of a complete batter-bread-fry line, including conveying, weighing and inspection equipment or retrofitted to existing lines.

Heat and Control Pty Ltd
www.heatandcontrol.com

Plate freezer system

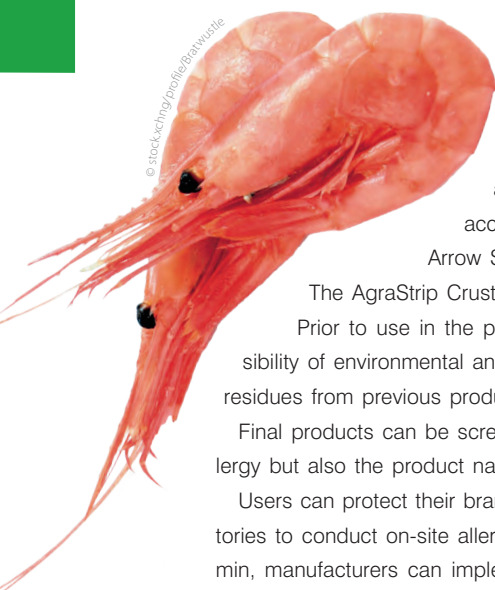
The Milmeq V16 Plate Freezer is a system suitable for snap-freezing seafood product. Product is loaded into the freezer cavities by an operator and rapidly frozen through a contact freezing method.

Each cavity is surrounded by a refrigerated plate which circulates either ammonia, CO₂ or freon refrigerant through the entire system. Freezing time is approximately three to four hours and once the product has been frozen, the system activates the automatic unload sequence.

The unload starts with a hot gas defrost of the plates and then a mechanical lifting of the plates allows the frozen blocks of food to smoothly eject from the system onto an underlying conveyor which transports the product to packing/palletising.

The V16 freezer is suitable for both land and marine installation. The technology can improve productivity, maximise footprint and reduce manual handling of fresh seafood product. The integrated automation controls ensure the system maximises freezing productivity and caters for high-throughput processing lines.

Milmeq Pty Ltd
www.milmeq.com



Crustacean detection test kit

people in the community who are allergic to crustaceans such as crabs, lobsters and crayfish. trigger for this allergy is a protein called tropomyosin.

Exposure to this protein can cause symptoms from skin irritation through to life-threatening anaphylaxis. People must manage this allergy via an exclusion diet and therefore rely on the accuracy of food allergen statements provided by food manufacturers printed on food products.

Arrow Scientific's food allergy range has expanded to include a test kit for the detection of Crustacea.

The AgraStrip Crustacea is an immunological rapid test in a lateral flow format.

Prior to use in the production process, incoming ingredients can be screened for the allergen, decreasing the possibility of environmental and product contamination. Users can also verify cleaning has been done correctly to prevent any residues from previous production batches.

Final products can be screened prior to release for sale to the community, protecting not only those susceptible to this allergy but also the product name and possible costs associated with product recalls due to mislabelling.

Users can protect their brand and reputation by utilising a test kit specifically developed for food manufacturers and laboratories to conduct on-site allergen testing at all stages of the production process. As results are available in approximately 10 min, manufacturers can implement corrective action in the circumstance where an ingredient sample or environmental swab shows a positive result.

Arrow Scientific
www.arrowscientific.com.au

Belt cutter

The GS 10-2 belt cutter from Kronen is suitable for meat, fish, sausage, bread, cheese, nuts, etc. It is suitable for use in large kitchens, catering and industrial applications.

The machine has a sloping surface with inclined slants and is constructed of hygienic stainless steel AISI 304. Its knife box has optimised rejection, meaning products remain undamaged during the unloading process.

The company has redesigned the machine's downholder and added a safety interlock system at the knife box.

The blades can be changed quickly, and cutting discs can be positioned close to the cutting edge without a tool. All machine parts can be quickly removed for cleaning without the need for tools. The user-friendly electronic control panel allows digital in-motion cutting size adjustments.

Up to 100 individual, user-definable settings for parameters such as knife and belt speed can be stored. The machine can be integrated into a professional production line.

Reactive Engineering Pty Ltd

www.reactive-eng.com.au



Twin drum spiral oven

The Twin Drum Spiral Oven from Heat and Control is a twin spiral cooking system that gives food processors independent control over each drum's cooking environment. According to the company, this enables processors to follow precise recipes to produce consistent, uniform quality product.

Unlike twin spiral ovens in a divided single enclosure, the system has separate enclosures for each spiral, which allows for maximum temperature and moisture control.

The system also offers: independent cooking control for each spiral conveyor; uniform airflow across the belt and from top to bottom; and cylindrical enclosures that eliminate hard-to-clean corners.

Heat and Control Pty Ltd

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marel

Avoiding the horsemeat scandal with real-time PCR

Primerdesign specialises in real-time PCR (polymerase chain reaction), the same technology made famous by *CSI* and other police dramas. This technique looks for the presence of specific DNA sequences and then amplifies it. Once amplified, the DNA fluoresces so it can be read by special cameras. The more DNA present, the faster the fluorescence appears.

In early 2013, UK supermarkets and meat produce suppliers were rocked by revelations that horsemeat had ended up in a large number of beef products. At the same time additional concerns were growing, such as the presence of pork in halal products.

Having previously developed a test to detect horsemeat, Primerdesign attracted a great deal of interest from labs who wished to conduct testing for the many food companies affected by this scandal.

While most suppliers chose to outsource their meat testing, this is generally less economical compared with the overall savings made by establishing an in-house laboratory.

As the horsemeat scandal continued to grow, Primerdesign was contacted by a large meat product manufacturer looking to obtain peace of mind that its supply chain and products were not affected by the adulteration which had occurred. The company wanted to ensure that its reputation as a world-class meat manufacturer would not be affected by this scandal.

The producer ultimately wanted an in-house facility to confirm the ELISA results from FERA (Food and Environment Research Agency) and to have total peace of mind that there were no potential supplier issues or media stories that could arise and damage its reputation and bottom line.

Due to the cost of sending samples to external labs for testing (£20-30 per sample), the company could only submit one sample of product per batch, per day. However, by installing its own in-house, real-time, PCR lab facilities, multiple batches per day could be tested at greatly reduced costs (£4-5 per sample).

Primerdesign was consulted to set up and develop a professional and reliable process for the client. The company provided assistance via its expertise with equipment and supply procurement, as well as providing hands-on training of staff in the skills and procedures required.



By conducting the tests in-house, results were obtained much more quickly, reducing processing time and enabling greater flexibility.

By liaising with the PCR experts at Primerdesign regularly, the manufacturer was protected from the horsemeat scandal and ensured customer satisfaction and peace of mind.

The ongoing relationship means that the manufacturer has continued access to technical scientific support as and when needed.

According to Primerdesign, real-time PCR is an economical and thorough way to perform in-house validation of meat samples. It provides quality assurance, peace of mind and increases customers' trust by offering a scientifically robust technique to guarantee species purity. More economical and faster than traditional methods such as ELISA, it is a tidier process and results are more consistent. Real-time PCR is also twice as sensitive as other, more complex, traditional laboratory techniques.

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www.integratedsci.com.au



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Centrifugal air compressor

The Centac C800 centrifugal air compressor is an extension of Ingersoll Rand's Centac C1000 product line. Providing clean, oil-free air, the C800 has been certified as ISO 8573-1 Class 0.

The compressor is claimed to reduce energy use by up to 6% at full load. The unit's backward-leaning impellers have been designed with software and computational fluid dynamics that maximise peak efficiency and provide greater turndown. Inlet guide valves (IGVs) are standard on the compressor, delivering up to 10% additional energy savings at partial load.

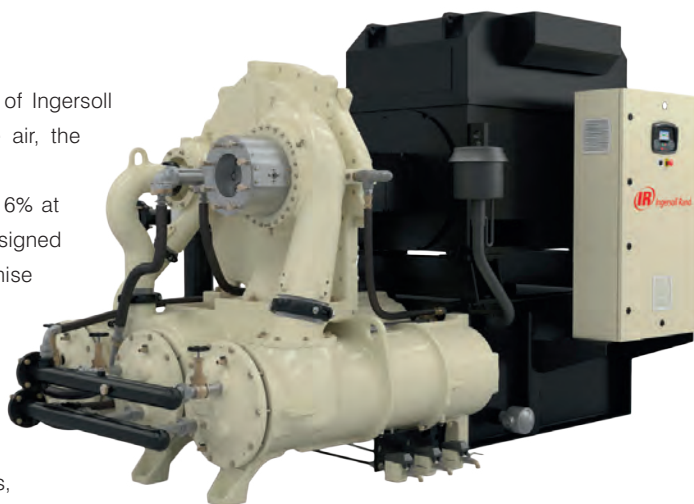
The company claims the compressor's features ensure 100% uptime. It has been manufactured with fewer parts, integrated components and easily accessible critical components, which increase its reliability and efficiency, the company says.

A one-piece removable inducer, in-place roddable coolers, bull gear inspection ports and an open cooler casing offer increased access to critical components. The fully configured compressor package also provides for efficient installation, with no special foundation or grouting required. The single inlet and outlet connections for cooling water can reduce installation time and cost, the company says.

The web-enabled Xe-Series controller enables plant and operations managers to remotely access and adjust the system. It presents real-time monitoring and trending of critical components, making it easier to predict maintenance needs and correct operating parameters from web-enabled smartphones, tablets and personal computers.

CAPS Australia Pty Ltd

www.capsaust.com.au



Rotary screw compressor range

Kaeser Compressors has launched the next generation of its ASK series rotary screw compressors. The compressors reportedly deliver more compressed air than their predecessors, while offering a user- and service-friendly design.

The compressors' Sigma Profile airends, cooling concept and high-efficiency IE3 motors deliver good performance. Models are available for free air deliveries from 0.84 to 4.65 m³/min, with an optional frequency control or integrated dryer available as options.

The integrated Sigma Control 2 controller provides efficient and intuitive control, while the energy-saving IE3 motors and radial fan with dedicated motor minimise energy use.

The compact compressors have a logical, user-friendly design that allows all maintenance parts to be accessed from one side for easy servicing. When closed, the enclosure's sound-dampening insulation reduces operating noise.

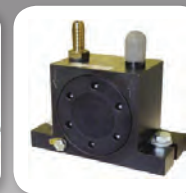
Kaeser Compressors Australia

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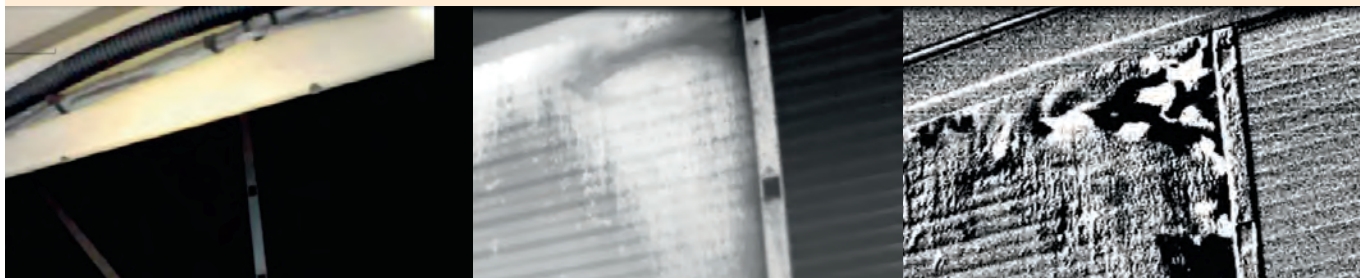
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Keeping the cool in with thermal imaging cameras



A refrigerant gas leak in visual video (left), thermal video (centre) and thermal video in High Sensitivity Mode (right).

Chillers commonly use refrigerant gas to provide cooling and therefore temperature control for large commercial properties. Maintenance specialist Integral UK regularly maintains those assets on behalf of some of the largest clients in Great Britain, many of them household names.

New developments in thermal imaging have enabled Integral to identify refrigerant gas leaks caused by wear or damage, which went undetected by other maintenance methods. The leaks were found quickly and efficiently by the GF304 thermal imaging camera from FLIR Systems.

Integral provides both planned preventive and reactive maintenance to more than 1600 clients in 40,000 locations. The company was a natural partner with FLIR in the development and field trials of the GF304, which Integral and FLIR believe is a groundbreaking product. During its field trial, the GF304 has repeatedly demonstrated its effectiveness by identifying refrigerant gas leaks that otherwise went undetected. If left unresolved, the leaks would not only cause long-term damage, but would also shorten the asset's life.

"We have been using the FLIR thermal imaging camera on major contracts for some time. Some large banking clients have estates that comprise 400 buildings or more," said Martin Popowicz, Integral's leading figure in thermal imaging.

"The cameras helped us save energy. By detecting leaks in buildings that otherwise went undetected, we were able to locate lack of insulation and hotspots. We also used the cameras on the mechanical side, including the maintenance of pumps, motors, compressors, chillers, etc.

"It has always been difficult to detect refrigerant gas leaks from our chillers. The recent field trial with FLIR, however, has been most impressive, enabling us to locate and rectify with greater accuracy and efficiency than ever before, providing clients with early energy savings and far better reliability."

Integral cites an example where, after a maintenance visit, its subcontractor chiller company said it had a suspected refrigeration leak. Integral used the FLIR GF304 camera to try to locate the leak. The survey was carried out the next day and quickly confirmed there was no leak. This replaced traditional methods where the chiller had to be degassed and checked

for leaks visually and then recharged - a procedure which could take a week or more. This operation kept the chiller fully operational and Integral was able to avoid the pitfalls of extended downtime. Thanks to these time gains, the client avoided incurring considerable expense.

Traditional methods for refrigerant gas leak detection promote the use of sniffers. Unfortunately, because of the way chillers are designed, accessibility is always a problem and, on average, it is only possible to test 60% of the installation. With the GF304, access is improved, allowing for accurate diagnostics within those areas which are difficult to access in normal operations.

The visual output of the GF304 allows users to clearly see any exit point of the gas, automatically supplying evidence-based reports on gas escapes that remain undetectable from any other source.

FLIR's reporting software is a valuable communication tool when Integral reports to its clients. The engineer's report, which also carries a thermal image of the incident, provides the client with a visual representation of the problem, allowing them to be better informed about the extent and impact of the breakdown.

"Predictive tools like the FLIR GF304 are key to our operation," said Popowicz. "If you can identify a gas escape before it develops and apply remedial actions, you can mitigate major failure in the future. This way, you can improve the reliability of the chiller and extend the life cycle of a critical building asset. You can never fully eradicate downtime, but the GF304 significantly helps to reduce it."

The GF304 is versatile and can be used both for finding refrigerant gas leaks and providing the more usual maintenance inspections of high voltage, low voltage, mechanical and general building inspections.

"We most definitely recommend the FLIR GF304 for dual use. For a maintenance company, it is more efficient and provides continued financial benefit. Employees can carry out a broader range of accurate inspections during their scheduled maintenance visit," Popowicz said.

"Thanks to the FLIR GF304, an engineer can actually do several tasks with one single camera. Checking the chillers, pumps, motors ... pretty much everything. In effect, it's a versatile, cost-effective solution for all our thermal maintenance requirements."

Disclaimer: Images for illustrative purposes only and may not be representative of the actual resolution of the camera shown. Technical specifications are subject to change without notice.

FLIR Systems Australia Pty Ltd
www.flir.com.au



The GF304 gas imaging camera was developed for the detection of refrigerant gases without the need to shut down the operation.

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Pallet storage system

Dexion's high-density satellite pallet storage solution is suitable for businesses requiring high-density storage of multiple pallets. The solution optimises storage against available volume by leveraging available depth space.

According to the company, the storage system offers advantages over typical block stack and drive-in storage applications, including space optimisation, increased utilisation benefits, safety assurance and improved productivity.

The stack height is limited only by the warehouse's dimensional reach. Stack depth is typically 5 to 15 deep, but can be deeper if the product profile permits. The system is also unidirectional - it can be loaded from one end and unloaded from the other, enabling greater storage capacity and packaging efficiencies.

The system's rails are fitted with detection holes, which are aligned with the satellite unit sensors. High-tolerance rails

joins allow for smooth running of the satellite unit in deeper storage applications. Collision protection at the front and rear pallets ensures safe handling of overhanging pallets.

The solution offers the capability to move up to 60 pallets/h and has an operating temperature from -30 to +40°C. Cart operation is controlled by sensors at the side, front and top.

The system has a 3- to 4-hour recharge time; an automatic battery recharging solution is available. A variety of battery changeover options are available, including in-rack battery changeover option, traditional battery charging rooms and battery changeover process.

Brushes are installed at the front of the guide wheels or along the side of the satellite unit, sweeping the surface of the rail to ensure a clean running surface for the wheels. An eccentric drive lifting process enables the unit to lift half the load at a time to prolong battery life.

Dexion Citiport

www.dexionstorage.com.au

Loscam delivers in NZ's North Island

Foodstuffs North Island, a 100% NZ-owned and operated cooperative, operates retail and wholesale brands across - you guessed it - New Zealand's North Island.

The cooperative supplies 98 New World, 40 PAK'nSAVE and 205 Four Square owner-operated retail supermarkets, as well as 55 Liquorland, three Write Price and two Shoprite stores and wholesale foodservice brands Gilmours and Toops.

The membership is supported by an infrastructure and team of 2000 who work across seven distribution centres and two support centres across the North Island.

Foodstuffs has joined with Loscam to develop an initiative focused on delivering a best-in-class packaging solution for its fresh produce supply chain. Loscam is a provider of returnable package handling (RPH) solutions for use in Asia-Pacific supply chains.

The standardised packaging solution, provided by Loscam, includes its Active Lock produce crates and rising floor bins. These result in less handling of the produce through the supply chain and improved efficiency of in-store replenishment.

Loscam says the solution provides the opportunity to enhance the efficiency, safety and flexibility of the Foodstuffs produce supply chain by giving suppliers access to the latest standardised packaging technology.

The solution is one of many collaborative initiatives that Foodstuffs has become involved in to streamline supply chain activities and enable the cooperative to offer shoppers the freshest produce possible.

"Standardising packaging within our fresh supply chain has been a priority for us. We see opportunities to drive efficiency by reducing the amount of different packaging within the network," said Vaughan Grant, general manager supply chain, Foodstuffs North Island.

"Ensuring we present the freshest produce in the fastest and safest manner possible to our customers is a factor that will position us to stay at the forefront in this sector."

"We are excited about extending our relationship with Foodstuffs into the fresh produce sector and we are very much looking forward to investing in the innovative crate solution, simple administrative processes and crate wash facilities across the country to deliver a world-class returnable crate solution," said David Edwards, Loscam's corporate head of development.

"Our crates and bins will enhance the supply chain process and we see lots of opportunities to bring choice to the wider produce sector over the coming years."

Loscam Ltd

www.loscam.com



High-quality, affordable pallet ASRS
Reduced supply chain cost
Flexible, scalable & modular solution

Another logistics result.

It's challenging times for Food & Beverage and FMCG manufacturers with changing consumer behavior pushing inventory back down the supply chain. This is putting pressure on the storage, handling and transport of product and is creating a supply chain dilemma that is impacting profitability. Enter Dematic's new RapidStore pallet ASRS - a high-quality, affordable solution that secures product, reduces touches, and eliminates damage, whilst saving footprint, power, time and money. And it's backed by Dematic's unrivalled integration experience, local software development, and comprehensive service and support network. That's what we call a logistics result.

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Metal-detectable polymers

Designed for safe and residue-free food manufacture, igus polymers are lubricant-free, chemical resistant and antimicrobial. The detectable polymers can be picked up by metal detectors.

According to the company, even small fragments of the blue material can be detected by all standard metal detection systems and can thus be removed automatically. Made from FDA-conforming materials that are suitable for use with foods, the polymers can safely come into contact with food. The materials effectively prevent the growth of bacteria, viruses and mould, according to the company.

Users from the food and pharmaceutical industries can use igus's durable, corrosion-free and versatile polymer energy chains in their machines and lines.

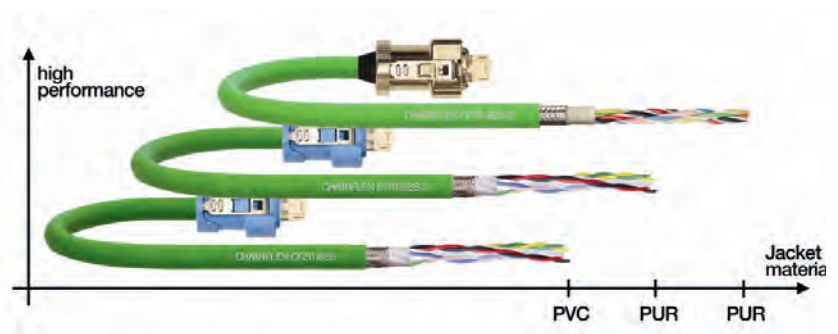
Also available is the iglidur PRT family of lubricant-free polymer rotary table bearings. The bearing of the PRT 01 design is made of corrosion-free stainless steel. The sliding elements between the inner and outer ring are made of the iglidur material A180.

As an FDA-conforming special polymer, A180 is suitable for contact with food and humidity. With their low-profile, rigid design, the lubricant- and maintenance-free polymer rotary table bearings can replace lubricated ball bearing rotary tables or rotary connections. The food-conforming polymer rotary table bearings are available ready to fit in size 200 (inner diameter 200 mm).

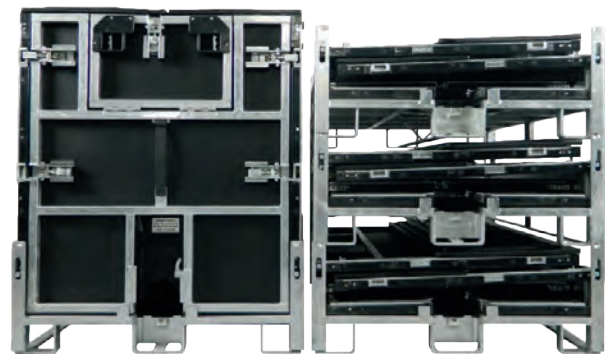
Designed for use in moving applications, the igus Chainflex range of cables has been extended to include an antimicrobial series, CFSPECIAL, for food-related applications. The only visible difference between the bend-resistant jacket material and other cables is its blue colour.

Treotham Automation Pty Ltd

www.treotham.com.au



Intermediate bulk containers



The QUBIT range of intermediate bulk containers have been designed for the storage and transportation of both liquid and dry goods products. A UN Certified dangerous goods IBC complements the range.

The QUBIT IBCs feature moulded plastic retainers framing the poly cladding to hot dip galvanised external gate frames, offering the end user a smooth screw-less internal surface to minimise damage to the internal liner bag.

Lightweight HDPE blow-moulded hinged lids eliminate the need for heavy, one-piece, lift-off lids, yet are robust enough to enable four-unit stack heights in warehousing situations. (Steel lids for UN.)

The 1200 x 1000 mm footprint improves product transport efficiency, enabling more units per truck.

The sliding discharge outlet chock interlocks with compatible 2 and 3" discharge outlets.

Traditional features such as a hot dip galvanised base with 4-way entry, a folding ratio of 3:1 and inter-stackability when full or empty continue with the range of QUBIT products.

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www.milfordibc.com



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Vacuum receiver with pneumatic dump valve

Flexicon has introduced a vacuum receiver with a pneumatically actuated dump valve for dilute phase pneumatic conveying systems.

Constructed of stainless steel, the vacuum receiver features a rugged, clamp-together design that facilitates rapid, tool-free disassembly for filter cleaning and maintenance. The modular design permits the addition of cylinder segments for increased holding volume.

The flap-type dump valve is actuated by a pneumatic cylinder via manual contact closure, or programmable controls based on weight gain, elapsed time or other user-defined parameters.

Unlike conventional filter receivers that employ multiple small filter elements, this unit employs a single large-diameter filter cartridge that facilitates rapid filter changes, as well as automatic reverse pulse jet cleaning of the filter element, in order to maintain conveying efficiency during operation.

Flexicon vacuum receivers separate solids from the air stream using filter media and gravity, and are generally specified when materials contain smaller particles that are prone to dusting and/or when dust containment is a primary requirement.

According to the company, the new filter receiver handles a wide range of capacities but is particularly suited to high-volume applications above storage vessels or process equipment such as blenders and bulk bag fillers.

Flexicon Corporation (Australia) Pty Limited

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Double and triple scissor-lift tables

Actisafe has introduced double and triple scissor-lift tables that have two-tonne load capacities. They can be custom designed and manufactured to meet the requirements of the manufacturing, handling, retail and food sectors.

The scissor-lift tables are not people-lift items of equipment; rather, they are designed to lift or lower product and/or equipment up to and from a selected height.

Applications include lifting stock to a gangway where an employee may be selecting various stockkeeping units for an order, or lifting items such as a generator or welding equipment to suitable heights to aid an operator during maintenance.

The durable products are designed for a range of warehouse and logistics conditions, and are provided with high-visibility yellow safety markings.

Customisation is possible on most aspects of the equipment, including bellows, roller tops and ball tops, while rails and auto-levelling sensors can be added on request.

Units are supplied with a powder-coated finish as standard, but can be delivered in galvanised finish, stainless steel or in a range of colours, with pallet disks or a U-shaped top. Trolley-mounting options facilitate mobility, allowing accurate and careful positioning of goods at the right height in most parts of the plant.

According to the company, the products are a cost-effective alternative to manual handling and can minimise operators' exposure to OH&S-related handling problems.

Actisafe

www.actisafe.com.au



Stainless steel conveying systems and equipment for the food industry:

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Multi-directional sorting

Intralox's Omni-Directional Sorter is capable of both receiving products from any direction and then sorting them in any direction at high rates within a compact footprint.

The sorter was developed for zone picking (or 'pick and pass') applications where items must be sorted to manual picking areas and then merged back onto the same conveyor. Another application of the product is single-level infeed/outfeed to automated storage and retrieval systems at rates above 3600 cases or totes per hour.

This technology sorts at any angle at very high rates within a compact footprint. It can also provide value in other applications because it can sort backwards; selectively rotate products; reorient or align items; and position packages in rows and columns all on one machine. While these functions can currently be performed using multiple existing technologies, the Intralox sorter performs all functions on one machine.

The sorter handles various types of packages, cases, and other conveyable objects.

Intralox Australia Pty Ltd

www.intralox.com



© stock.xchng/profile/Gastonmag

Hygienic design gearboxes

Designed and certified according to EHEDG (European Hygienic Engineering & Design Group) rules to ensure good material resistance and cleanability, the Hygienic Design Gearboxes from Treotham Automation meet the stringent requirements of the food and pharmaceutical packaging industries.

With their coaxial, dynamic planetary gearheads available in several different performance classes, the Hygienic Design Gearboxes have been designed to provide robustness, resistance and cleanability.

The gearbox housing is free of edges, dead spaces and gaps that could provide a breeding ground for bacteria or microorganisms or act as dirt traps.

Like its adapter plate, the gearbox housing is manufactured from stainless steel 1.4404/AISI 316L - a low-carbon steel that is approved by the US Food & Drug Administration (FDA) for food contact that offers high resistance to cleaning and washdown fluids such as disinfectants containing hypochlorite or chlorinated alkaline foam cleaners.

All stainless steel surfaces are electropolished with a roughness of either 0.8 μm Ra, as stipulated for food processing applications or 0.4 μm Ra, which is the accepted standard for the pharmaceutical industry.

This surface treatment minimises the risk of product residue adhesion and helps disinfectants or cleaning materials drain off after the allocated exposure time without leaving any residues.

The seals on both the motor and the output side of the gearboxes are made from polytetrafluoroethylene (PTFE). Owing to its hygienic surface properties and non-stick effect, PTFE also conforms to the requirements of the US FDA and is suitable wherever hygienic cleaning is a legal requirement in the manufacturing process.

Treotham Automation Pty Ltd

www.treotham.com.au



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Refrigeration dryers

Kryosec refrigeration dryers from Kaeser Compressors deliver dependable drying performance in ambient temperatures of up to 50°C.

The compact dryers use minimal pressure differential even under tough operating conditions for compressed air flow rates from 0.35 to 2.2 m³/min. They have a generously dimensioned heat exchanger, refrigerant liquefaction surfaces and dedicated cooling air flow.

All models meet applicable machinery safety requirements (EN 60204-1), including a lockable on/off switch and an integrated power supply isolation device. The machines are suitable for localised installation on production and processing machines requiring compressed air treated to specific quality standards.

The dryers have a minimal space requirement and wall-mounting capability.

Kaeser Compressors Australia

www.kaeser.com



Fabricated tanks for liquid storage

Fusion Fabricated Tanks are a complete storage solution for water, chemicals and food and beverages. Designed under strict quality control, the customisable tanks are easy to repair and transport.

Fusion Tanks are fabricated from PE or PP and provide a high-strength, long-lasting and corrosion-free environment for liquid storage. They are suitable for industries requiring water, chemical, and food and beverage storage such as breweries, wineries, dairies, bakeries and water in buildings.

Fusion Tanks are designed to European Standards DVS 2205 and EN12573 and come with weld identification and traceability and a 25-year design life. They can be customised according to specific requirements including the addition of in/outlets (using quality Swiss, Georg Fischer fittings), bunding, lugs, dual laminate and level meters.

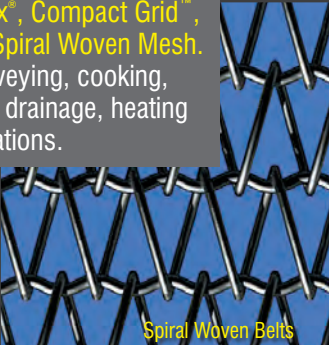

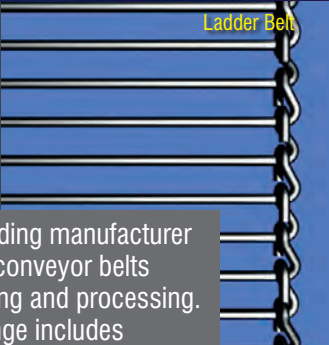

Fusion Tanks are prepared and manufactured in Fusion's workshops and installed on-site, meaning less interruption on-site and a faster start-up time frame.

Fusion


www.fusionaus.com.au



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Wirebelt is the leading manufacturer of stainless steel conveyor belts for product handling and processing. Manufacturing range includes Flat-Flex®, Eye-Flex®, Compact Grid™, Honeycomb and Spiral Woven Mesh. Wirebelt - for conveying, cooking, cooling, covering, drainage, heating and drying applications.



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A quality Finnish with Matcon design

Maustepalvelu (MP Spice Service Ltd) is a leading food consultant and supplier of food ingredients in Finland. Maustepalvelu's services cover the full spectrum, from the initial idea through to product development, procurement, storing ingredients and manufacturing customised blends and delivery of the final product.

With 68 employees in total, the company handles more than 1000 finished items with more than 500 ingredients. In 2012, the company's net sales were €21.2 million.

As demand increased, Maustepalvelu needed to not only meet this demand but reduce its inventory and maintain lead times. Using Matcon's design, the company upgraded its facilities to enable the enclosed and safe handling of all varieties of recipes and ingredients with full traceability and batch integrity throughout the process.

The new system incorporates enclosed batch handling, which enables quality assurance to be monitored at every process step without interfering in the process flow.

Matcon Technology works in conjunction with the lean manufacturing principle JIT (just in time), which allows for the short lead time without adding risk to the process. This enables the end user to be confident that their order will be supplied at the correct time, with no compromises in quality.

The technology works with the Parallel Process Concept, which is a key factor in ensuring the efficiency and agility



without the WIP (work in progress) inventory. It allows each process step to be reliably performed simultaneously, without holdup or interference.

Increased awareness of allergens in products - and the associated labelling requirements - has challenged traditional process design, preventing old styles from being used efficiently. To overcome this, Maustepalvelu has incorporated Matcon's IBC (Intermediate Bulk Container) System, which handles the allergen in a controlled and safe manner. This supports the lean philosophy to run 'any product, any time' in a fully controlled environment.

Matcon Pacific Pty Ltd
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Automated packaging line improves efficiency

AMBOS Stockfeeds recently installed an automatic animal feed packaging system as part of a major upgrade to its facilities in Young, New South Wales.

To raise the efficiency of its product handling from the laborious manual system, the company purchased an automated grain and feed packaging line from Kockums Bulk Systems (KBS).

Safety is a prime consideration for AMBOS and this is achieved through standard operating procedures and training. Alan Threlfall, son of the founder of the company, said: "As we have moved towards high levels of automation, we have seen that all new equipment is designed with safety in mind and arranged so hazards are engineered out of the equation."

Threlfall explains the company has a good 'family type' of culture, so that all staff are safety conscious. Because AMBOS holds to high quality and operational standards, it sought automated sack filling equipment from a company that had: proven products meeting Australian Standards; staff with good product knowledge and experience; and a 'switched-on' installation and service team. The company studied the market for available equipment, being prepared to pay that little extra for quality in keeping with their own standards and to maintain the trust of their client base.

AMBOS was attracted to KBS because of confidence in its quality products and reputation for successful installations and ongoing support.

The company installed equipment including a Payper open-mouth bagger that picks bags from a conveyor and offers them to the filling spout. When filled they move forward to the sewing head, then to the TMG automatic palletiser. From there they move forward as a pallet load to the Unitech automatic wrapper. Throughput is 700 to 900 sacks/h. The equipment is expected to perform 24/7 and be continually available for many years of service.

As a result of the higher rate of handling and the efficiency gained by the equipment, the company is considering export sales as a possible direction of expansion for the company. Its current market is throughout NSW with entry into Northern Victoria, Southern Queensland and South Australia.

"There is growth in the sack supply of feed products," says Threlfall. "We achieve particular customer requirements by working with specialist external consultants for the formulations, and our products are free of animal by-products."

"The new sack filling and palletising equipment enables the quick switch of products for responding directly to clients' needs."



KBS has a wide variety of sack filling, palletising and wrapping equipment and the experience necessary to assist the client with the best choice to suit their needs.

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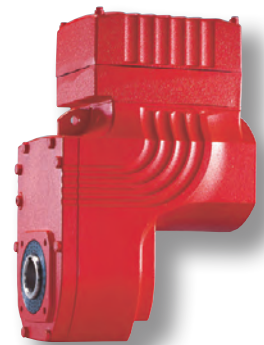
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Centralised vacuum supply is reliable and efficient

Based in Brisbane, Primo Smallgoods is one of Australia's largest smallgoods producers. The company's processing facility relies on a centralised vacuum unit from Busch Australia for its vacuum supply. The unit is an important part of production and guarantees that the meat products are hygienically, quickly and reliably packaged.

Primo's main criteria for using central vacuum supply were hygiene and the dispersal of waste heat created by the vacuum pumps in the packaging room, as well as easier and less frequent maintenance.

In order to run each packaging line with minimal energy expenditure while keeping the number of cycles as high as possible, the packaging rooms are evacuated in two stages. The critical drop in pressure is used and therefore a quick evacuation is made possible.

The first stage of evacuation is done by a low vacuum pump stand; the second, with a medium vacuum pump stand. The changeover valves with the corresponding rerouting electronics are directly attached to the individual packaging machines, controlling the transition from a low to medium vacuum.

A third vacuum pump stand provides vacuum for the forming stations in the packaging machines. Here, the base film of the packaging is heated and thermoformed with a vacuum and compressed air. This vacuum pump stand operates independently of the other two.

This separation of different vacuum stations is necessary for the supply to the packaging machines as these have a thermoforming and sealing function that need to run with vacuums of varying degrees. The pipe work serves as a vacuum buffer with more than 850 m of piping in the roof. This buffer is necessary to keep the packaging pressure at a constant level, even when all packaging machines are running with the same number of cycles.

The central vacuum unit is fully automated and runs as required, meaning that it switches on when a vacuum is required and switches off when the packaging machines are not in use. If a problem occurs in a vacuum pump when it is in low, medium or thermoforming mode, then a reserve pump is automatically activated. This maximises the reliability of vacuum supply to the packaging machines while ensuring it is energy efficient.

The centralised vacuum unit is integrated with the control technology, which controls and monitors the entire utility supply, ensuring permanent access to the operating data of each vacuum pump in the unit. This data is automatically archived and can be analysed over extended periods of time.

The system capacity of the rough vacuum at 15,000 m³/h at 50 mbar and fine vacuum at 12,500 m³/h at 5 mbar provides very fast evacuation time, reducing cycle time while increasing production rates. The capacity of the system while

on standby is 3000 m³/h. The Busch central vacuum system ensures economic efficiency by offering approximately 140 kW of power reduction.

Primo's packaging lines are classified as 'high-risk' hygiene areas. Products are cut and portioned immediately before being packaged, so the surface of the product is at its greatest and therefore poses the highest risk of contamination. Having the centralised vacuum supply outside the production and packaging rooms minimises the risk of contamination, as

this precludes the meats being contaminated by emissions from the vacuum pumps. In addition, maintenance personnel do not need to access these areas as no maintenance is required in the production and packaging rooms.

Keeping the vacuum pumps in a cooled room prevents heat being wasted. This has several benefits. Firstly, air conditioning in the packaging room is used less, saving energy and cost.

Secondly, by centralising the vacuum pumps, 33 kW of heat load can be removed from the packaging room, saving money on refrigeration costs.

The central vacuum unit was constructed modularly by Busch, making it possible to adapt the unit to differing production conditions. Initially, the unit was configured conservatively, but increasing demand even as early as the production start-up phase meant the central unit was expanded by several modules to deal with increased production and to cope with output peaks.

Reduced maintenance costs ensure cost-effectiveness, as there are fewer vacuum pumps installed; the reduction of installed vacuum pumps decreased from approximately 85 units to 24. To further minimise the risk of high costs and outage of the running plant, Busch has taken on maintenance of the system. This involves controlling the maintenance intervals and the work and services that need to be done while providing a basis for an extended warranty for the vacuum unit. In practice, maintenance work is carried out by Busch customer services twice a year.

Maintenance takes place while the unit is running, without having any adverse effects on production. This is another advantage of a modularly constructed central unit, as the modules in the vacuum system control can be individually disengaged. A reserve pump stand is automatically activated if a module is switched off. Busch customer services record the data from the vacuum pumps, maintenance work and the results of vacuum level and energy usage. Primo is therefore informed of the current condition of and possible necessary changes to the vacuum unit.



The Busch centralised vacuum unit at the Primo facility.

Busch Australia Pty Ltd
www.busch.com.au

Bulk material integrated system

NBE has introduced an automated bulk material handling and packaging system built on the NBE integrated construction and controls infrastructure.

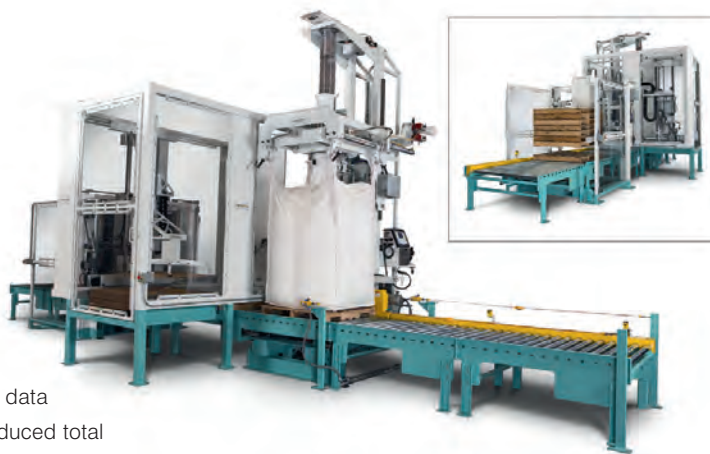
The complete process sequence, including pallet/base supply, slipsheet pick and placement, bulk material infeed, packaged contents isolated densification, weighing, and finished-package accumulation conveyance, operates on paired, process-specific structural framework chassis with all automation and control functions centralised on a single, menu-driven HMI to enable standardised and system-wide data reporting. The integrated construction provides the basis for reduced total cost of ownership, relative to the common systems integration concept of bolt-together, divergent 'islands' of equipment.

The slipsheet dispenser magazine can hold up to 1100 kg of sheet. Sensors and automated controls guide the dispenser lift carriage along horizontal and vertical flanged cam rollers to provide highly accurate pick and place of up to 30 slipsheets per hour. The bulk bag filling stage of this bulk packaging system uses a cantilevered fill head/bag hanger carriage design with pneumatic actions to bring the fill head and rear bag hooks to well within the operator's reach - eliminating the need for the operator to step or lean into the equipment.

The 8 GPM hydraulic lift carriage easily and safely lifts bag capacities up to 2000 kg. The hang-weigh system provides valid, accurate and repeatable weighing of the bulk bags to an accuracy of $\pm 0.05\%$ of bag weight, and the bulk bag densification platform uses 3 g of high-speed, low-intensity vibration to settle material in the bag to a dense, stable and safe load.

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BUILDING TRUST



Sweet solution to a sticky problem

Boag's Brewery in Tasmania had a sugar problem: the ISO pressurised containers used to bring sugar to the brewery were continually leaving a residue of 2 to 3 tonnes of sugar after emptying. Aside from the freight costs and environmental impact of the situation, the effective loss of capacity of the supply vessels was a problem.

All three stakeholders - Sugar Australia (the supplier), Toll Group (the carrier) and Boag's Brewery (the end user) - required a solution.

Kockums Bulk Systems has plenty of experience handling bulk solids in shipping containers, using its 'suck-blow' module for the unloading and transfer to storage silos. The brewery approached Kockums for a solution.

Following a trial and demonstration at Sugar Australia's Melbourne site, a test vessel was sent across the Bass Strait to Boag's in Tasmania. The trial was intended to be for just one week, but Boag's was so happy with the solution that the brewery kept the vessel for approximately 12 months while a customised vessel system was developed and manufactured to suit its requirements.

Once complete, the specially designed sugar receiving vessel was installed. The 0.75 m³-capacity vessel fills by vacuum from the containers brought to site by Toll Transport. It then pressurises to send the load up to the adjacent silo.

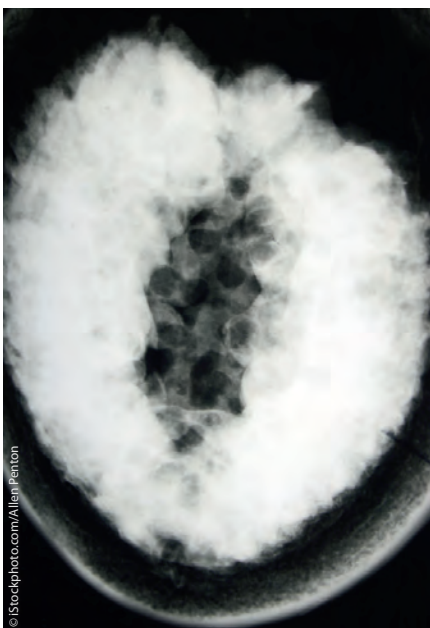
Constructed entirely from stainless steel, the food-grade quality vessel has a clean design and features quick-release couplings for access to enable cleaning. The vessel is also fitted with hazardous area instruments and controls for handling products like sugar. It achieves a transfer rate of 10 to 12 tonnes/h. Food-grade Posi-flate inflatable seat butterfly valves enable a quick response time and ensure a long valve life.



The system is based around Kockums' standard container unloading module used for flour, cement, magnesium oxide and alumina and is suitable for any powdered product.

Sugar Australia, Toll Intermodal, Toll Tasmania, Boag's Brewery and Kockums Bulk Systems worked closely to ensure the successful execution of the project.

Kockums Bulk Systems
www.kockumsbulk.com.au



X-ray system

The LOMA X⁴ X-ray System from Inspection Systems is sensitive to both metal and non-metallic contaminants such as glass, stone, calcified bone, high-density plastics and rubber.

The system is suitable for inspection of products that are transported loose and unpacked prior to packing and processing, such as nuts, grains, cereal, frozen fruit and vegetables, as well as formed products such as potato cakes and hamburgers.

To minimise product waste, a high-speed multiflap reject mechanism rejects portions by selecting on the the area of flow in which a contaminant has been detected. Top and side infeed chute options are available to suit a range of production layouts.

The system has a simple, easy-to-use, touch-screen interface; password-protected control provides flexibility of user access and control. The system is easy to access, allowing fast cleaning and belt removal.

An auto calibration system is built in and requires no programming. The system has a throughput in excess of 10 tonnes/h without loss of performance, according to the company.

Options available include reject confirmation, bin full sensing, remote diagnostics, lockable wheels and LomaEnet.

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Using steam to reduce costs in pet food production

As with human food, the production standards laid down for pet foods are rigorous, requiring manufacturers to ensure that production processes are carefully controlled in order to deliver a consistent, high-quality product. A large part of achieving this is dependent on the cooking process, which involves the controlled use of steam.

Designing and maintaining a steam system which can deliver precise temperature control efficiently and safely requires an integrated approach using products which are carefully specified for the application.

Within the pet food industry, the cooking process used in 95% of all production is extrusion, a process which includes a pre-conditioner, the extrusion cooker and a die/knife assembly which shapes the final product. Prior to this, the raw ingredients are carefully blended, mixed and then ground, in order to produce a substrate that can be cooked and often dried to produce the finished product.

The pre-conditioner is designed to increase the temperature and the moisture content of the substrate by the addition of steam and water. The steam is fed into the bottom of the pre-conditioner and must be carefully controlled in order to ensure a uniform distribution and even temperature rise within the substrate. The steam should be free from condensate and therefore will only contribute approximately 5% moisture to the substrate; to achieve the desired level of 10 to 30%, water is added from the top of the pre-conditioner.

In most applications, the steam is carefully controlled to elevate the substrate temperature to between 70 and 90°C before it is discharged into the extrusion cooker. A typical example would be the Bürkert type 2301 globe control valve, combined with a type 8694 TopControl positioner.


Once the moisture level has been adjusted, the substrate passes to the extruder itself, which uses a rotating screw to work the substrate into dough and also increase the pressure and temperature of the dough using a combination of friction

and steam energy. By using a combination of sensors connected to a controller, such as the Bürkert type 8619 MultiCELL controller, the process can be monitored and adjusted to ensure that the optimum parameters are maintained.

Extrusion temperature is often set at a critical control point (CCP) which manufacturers require as part of their food safety program, which is designed to reduce the specific risk of *Salmonella*. Using a properly controlled system with data-logging facilities will help to ensure that the program is consistently implemented and the evidence recorded. However, heating costs need to be properly managed as well, so finding the right balance between heat produced mechanically and heat from steam is essential to maximise the efficiency of the process.

Pet food safety is also a critical aspect of the production process that demands reliable and accurate control of the cooking process. Failure to meet specific legislation can have serious consequences, while operating an inefficient production process can significantly affect the financial margins for the product. In both cases, proper steam management is crucial.

The process of generating, conveying and controlling steam is one which requires expert advice and engineering knowledge; otherwise, at best, the process is inefficient. At worst, serious injury can result.

Bürkert has produced a detailed Steam Site Guide, which can be downloaded from the company website, to help designers and maintenance engineers ensure that both new and existing facilities are properly managed. 

Bürkert Fluid Control Systems
www.burkert.com.au

NORD gearmotors get the job done for TMCI Padovan



Searching for a solution to replace a traditional vacuum filter, a well-known Italian producer of flavoured drinks had several stipulations: the solution must be reliable and energy efficient, and be able to operate for 8 to 10 hours a day, 365 days a year.

The company identified TMCI Padovan's Dynamos machine, supplied with NORD Drivesystems gearmotors, as one possibility and asked TMCI Padovan to perform a test in its production plant. Happy with the test, the company installed the Dynamos machine.

The machine is involved in the final processing of the grounds resulting from the cross-flow filtration of vermouth-based wines and from clarifications with decolourising carbon.

The Dynamos's software flexibility allowed the company to match the operating parameters to the final products. In addition, the Dynamos's compactness and cleanliness enabled it to be situated in a closed room, allowing for better hygiene and reduced overall size.

Temperature pick-up is negligible and, being a closed system, the product oxidation is virtually nil, the company says. The machine operates without adjuvants, providing both safety and environmental benefits. The reduction of filtering adjuvants and resulting waste was one feature that led the company to choose the Dynamos.

The Dynamos is claimed to be the first rotating dynamic cross-flow filter provided with an innovative calibrated back-pulse system. It is most suitable for use in the filtration of must and wine grounds without adjuvants (ie, liquids with a high level of suspended solids).

The machine operates on the principle of cross-flow filtration applied on discs. The process prevents lock-ups and allows easy cleaning. It requires long filtration cycles (up to 72 h without interruptions) and high-rated yields (25 to 50 L/m²/h with no lees), without reduction of the red colour and with low oxygen absorption. The compact machines are available in models ranging from 2 to 40 m², plus multiples.

The smaller machine includes four NORD SK3282AF parallel-axis gearmotors with an SK205E inverter and 2.2 kW motor. The larger machine has double the number of drives; as the gearmotors rotate the filtration discs, their number varies as a function of the number of disc-holding shafts (1 to 16) on the machine. The machines have one or two tanks for the product. Each tank uses four gearmotors; it is therefore necessary to double the gearmotors when two tanks are in use.

To ensure a time-constant rotation, the gearmotors are supplied with a sensorless vectorial inverter - an inverter that

doesn't require a speed sensor - and the SK205E inverters. The drives adjust the system speed by communicating with the control PLC through Fieldbus. The Dynamos filters are also provided with a 4-pole 3 kW motor with a NORD SK205E inverter for the circulation pump.

SK 200E inverter models are available for either installation beside the motor or integrated in the motor, with the same function

range of the centralised inverter series SK 500E for cabinet installation. Besides offering a large overload capacity of 200%, the distributed inverters allow the users to place the driver with high accuracy. The relevant positions (incremental or continuous axes) or the absolute values (rotating tables/repeatable fixed positions) can be controlled by binary values entered through SK 200E inputs and stored in the drive. Alternatively, they can be set through a Fieldbus system.

The positions are detected through incremental encoders (in the basic supply of inverters an onboard reference function is included), or it is possible to directly set the values provided by an absolute encoder on CANopen. The configuration is simple and quick - only a few parameters need to be set for commissioning and optimisation.

TMCI Padovan says a number of features of the NORD gearmotors contributed to the success of the application, such as: their high rotation accuracy; the energy-saving function which uses only a fraction of the rated power when the filter doesn't require the full rated power; the ease of mounting due to their compactness; the local storage of all the programming data on removable EEPROM; and the possibility of matching safety standards like EN 61508: SIL3.

"We selected NORD mostly because of the quality, the robustness and the typology of material that we consider to be suitable for prolonged industrial use," said Narciso Gatti, purchase and operations manager for TMCI Padovan.

"Our company already uses NORD products, especially for vacuum filters, vegetable oil processing machines and tunnel pasteurisers. NORD has been a supplier to TMCI Padovan for many years. The first contact was established about 11 years ago following a research that we made internally."

Before NORD gearmotors with onboard inverters were available, belt transmission motors were used in Dynamos filters.

"The new technology allowed us to obtain several advantages, like greater energy savings, greater reliability, a more simplified machine design and greater safety for operators," said Gatti.

"In the future, we will probably use NORD solutions also in our other products. In particular, we'll replace the current transmissions based on motors and pulleys with toothed belts and in plants for industrial use."

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Vacuum processing unit

The FrymaKoruma MaxxD Lab vacuum processing unit is used to perform test series and produce very small batch sizes. In the lab-scale version, the MaxxD has a usable volume of 3 to 12 L.

The unit's rotor-stator system is useful when manufacturing mayonnaise, ketchup, sauces, dressings, spreads and chocolate masses. According to the company, the unit offers reliable scale-ups for all formulations. It processes liquid and semisolid forms with the help of efficient homogenising technology to obtain stable emulsions and suspensions.

The ingredients are fed to the homogeniser by means of an integrated, controllable vacuum system. The rotor-stator tool inputs the shear energy into the product mass and conveys the formulation to the machine's main vessel through a recirculation line.

A scraper agitator inside this vessel provides good macromixing and gives optimal heat exchange during the heating or cooling process. The vessel's geometry and the process tool allow shorter batch cycles.

Romaco

www.romaco.com

Inline tunnel freezer

The Starfrost Turbo IQF is a fluidised bed inline tunnel freezer which is fully automated and includes a vibratory in-feed conveyor to achieve even separation of product entering the freezer.

With independently adjustable airflow and conveyor belt speeds, the system provides flexibility for varying product types.

Even wet, sticky and delicate food items normally considered difficult to freeze are carefully handled and effectively processed within the machine. Suitable product applications include French fries, frozen herbs, bean sprouts, cooked rice and pasta, minced meat, grated cheese and a range of fruit and vegetables such as mushrooms, onions, peas, tomato and diced peaches.

The tunnel freezer was developed to be a modular design, allowing smaller units to be completely assembled and tested in the workshop before delivery. For users requiring larger models, the system is delivered in modules that are quick and easy to assemble on-site.

The product comes with variable speed belts and variable speed fans, which allows operators to adapt to varying product types. An industry-graded plastic belt is integrated in the system, reducing product sticking.

Milmeq Pty Ltd

www.milmeq.com

Closed-loop slurry seasoning system

tna's intelli-flav^{CLS} 3 is a closed-loop slurry (CLS) seasoning system that enhances the homogeneity of the slurry mix. It is suitable for salty snacks, baked snacks and extruded products that require slurry flavouring in a tumble drum.

The system's spraying technology and control ensures consistency of application to the product. In addition, the fully automated design of the system - including dry seasoning, oil and other ingredients - reduces the need for dedicated labour and simplifies the production line.

Working from bags of seasoning powder and a pressurised supply of oil, the system meters the ingredients to a specified recipe, mixes it using an innovative under-surface mixing head within a double-jacketed, heat-controlled heated tank, then applies the slurry to the products via spray guns.

Spraying accuracy is controlled by a high-performance positive-displacement pump which measures the actual usage of the slurry compared with required levels, adjusting automatically to ensure consistency of application and minimum waste.

The system can alter both liquid and dry powder proportions for specific recipe variations. It can be combined with the intelli-flav^{MLS} main line seasoning system to ensure snack products are delivered into the tumbling seasoning bed with minimum waste and product damage.

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Solar hot water company awarded for winery installation

Solar hot water company Apricus Australia has been honoured with an environmental award at the Wine Industry Suppliers Australia's (WISA) Supplier of the Year Awards. The awards aim to recognise excellence in supply and manufacturing within the Australian wine industry.



The company jointly won the Banrock Station Environmental & Sustainability Award with The Solar Project for their collaboration in delivering the largest solar thermal plant for a winery in Australasia. The judges noted, "While individual finalists in their own right, their joint collaboration to provide solutions to our industry, that prides itself on its green credentials, resulted in not being able to split these two winners."

Apricus Australia Commercial Manager Bryan Moss explained that De Bortoli Wines was seeking to expand its bottling lines to keep up with increased demand. "This was seen as an opportunity to not only increase efficiency of the production line, but also design the new plant with energy efficiency in mind to reduce their overall energy usage," he said.

Apricus partnered with other suppliers - S4B Studio, The Solar Project and Fletcher Plumbing - to custom-design the solar thermal plant at the winery's upgraded bottling plant

in Bilbul, near Griffith. The Apricus solar hot water system consists of 3000 solar tubes, plugged into 100 AP30 manifolds that are preheating 12,000 L of storage for the bottling plant.

Apricus is said to be the only solar hot water company in Australia to provide evacuated tube solar collector technology manufactured in its own company facilities. Apricus founder and Managing Director Chris Taylor said the tubes were suitable for the project due to their built-in frost protection (-15°C rating without glycol) and high-temperature performance.

The tubes preheat the condensing boilers to dramatically reduce their energy/gas consumption. During the winter months, they are mounted on a 37° pitch to maximise solar performance.

Paul Fletcher of Fletcher Plumbing noted, "After commissioning, the system was powered on from 8 am with a starting water temperature of 20°C. The system achieved 12,000 L of storage at a temperature of 71°C by 3.30 pm!"

Furthermore, said Taylor, "The 200 kW Apricus solar thermal plant is expected to reduce De Bortoli's water heating costs by more than 80% annually when it is running at optimal capacity and supply close to 100% of heating requirements during the summer months. In addition, energy usage is expected to reduce from 382,180 kWh down to 71,065 kWh each year.

"Importantly, the installation has the equivalent carbon abatement of 3800 trees being planted each year and will help drive De Bortoli towards its goal of being 'The Zero Waste Winery'."

Apricus has also installed data logging and monitoring equipment and will track the system performance over time to ensure it continues to deliver optimal performance.

The WISA judges said Apricus "demonstrated how their solar thermal technology is so suited for use by wineries to reduce energy and fossil fuel demand".

Previously published on www.SustainabilityMatters.net.au.

Apricus Australia
www.apricus.com.au

Triple beam pipeline inspection X-ray system

The ScanTrac Fermata Trio 4" pipeline inspection system from INSPX uses a triple X-ray architecture that uses multiple dimensions to detect any foreign material in the product. The system is capable of speeds of up to 1890 L of product/min.

INSPX offers a range of X-ray inspection solutions that can detect a range of foreign objects such as: metal objects, filings and particles; shards of glass; stones; bone; rubber; and low-contrast images such as plastics in powders.

The X-ray inspection systems are suitable for the inspection of metal cans and trays; glass bottles and jars; plastic bottles and containers; boxes and cartons; pouches; products in trays and bags; and materials in pipes.

The INSPX systems perform multiple tests simultaneously, including: package inspection, density, fill level and fill volume; contamination inspection; missing components and void detection; out of conformance containers (damaged, dented or upside-down); and checkweighing.

HBM Packaging Technologies

www.hbm.com.au



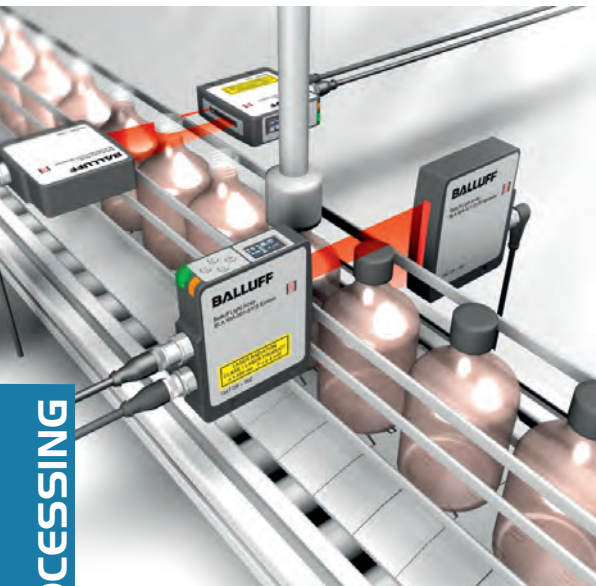


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High-resolution light grid

Balluff has developed a high-resolution light grid for optical object detection with a width of 50 mm and a range of up to 2 m.

Comprising a transmitter with a redlight laser and a receiver, the device is self-sufficient, working without additional accessories such as PC or special software. All settings can be made via a display in the receiver.

The device evaluates not only the light quantity of the homogeneous red laser light, but also the location and position within the light grid. In addition, the emitter and receiver are encased in a rugged industrial housing and can be easily aligned using the live graphic display on the integrated multifunction display.

Users can teach-in up to six different objects using the buttons and can hide obstructions in the measuring field (blanking). In this way, different objects can reliably be detected, compared and sorted based on minimal differences in size, the company says.

Other applications include presence and height checks. The result of the inspection is available at two analog and three digital outputs.

Balluff-Leuze Pty Ltd

www.balluff.com.au

High-flow jetting tank washer

Available from Tecpro Australia, the Breconcherry Tornado is a high-flow jetting tank washer designed to provide high-impact jets for difficult-to-clean products such as yeast, glue and resin.

The Tornado produces two highly focused jets that move around the tank in a spiral pattern to provide 360° coverage. The mechanism is driven entirely by the cleaning fluid, with geared movement to maintain an optimum jet peripheral velocity that maximises jet impingement and chemical dwell times.

Suitable for large and very large vessels, including brewing tanks, mixing vessels and chemical reactors, the product has a seven-minute wash cycle, which can minimise downtime. The unit's lower flow rates conserve water and can reduce the cost of chemicals and effluent disposal.

The unit has only 48 parts in total and a basic spares kit consisting of 10 parts, making it easy to maintain. Its backwash nozzles blast clean any remaining product on the body of the cleaning head, reducing wear and tear and helping to ensure hygiene regulations are met.

Carbon PTFE bearings eliminate the contamination risks associated with the wear and tear of standard ball bearings. Lightweight and compact, the unit has a 1.5" BSP connection and requires a minimum manhole/flange opening of 210 mm for unit insertion.

At a pressure of 10 bar and a flow rate of 360 L/min, the unit has a cleaning radius of 13.5 m. It is suitable for working temperatures up to 95°C and ambient temperatures of up to 140°C.

Tecpro Australia

www.tecpro.com.au



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From cassava to KFC

Global standardised diet threatens local crops

Globalisation isn't just affecting the clothes we wear and the music we listen to - it's also dictating what we eat. A new study of global food supplies has confirmed what experts have long suspected: in the last 50 years, human diets around the world have grown more and more similar - by a global average of 36%.

This trend shows no signs of slowing, the study reveals, and could have major consequences for human nutrition and global food security.

"More people are consuming more calories, protein and fat, and they rely increasingly on a short list of major food crops, like wheat, maize and soybean, along with meat and dairy products, for most of their food," said lead author Colin Khoury, a scientist at the Colombia-based International Center for Tropical Agriculture (CIAT), which is a member of the CGIAR Consortium, a global research partnership for a food-secure future.

"These foods are critical for combating world hunger, but relying on a global diet of such limited diversity obligates us to bolster the nutritional quality of the major crops, as consumption of other nutritious grains and vegetables declines."

The study authors call for urgent action to promote healthier, more diverse food alternatives to prevent the growing incidence of obesity, heart disease and diabetes, which are strongly affected by dietary change.

Crops of regional importance - like sorghum, millet, rye, sweet potato and cassava - are being overtaken by wheat, rice, maize and potato. The study authors are particularly worried that the emerging 'standards global food supply' also consists of energy-dense food crops like palm oil, soybean and sunflower oil.

Wheat is a major staple in 97.4% of countries and rice in 90.8%. Soybean has become significant in 74.3% of countries.

Many locally significant grain and vegetable crops have lost ground to these crops. For example, the nutritious tuber known as oca, which was previously widely grown in the Andean highlands, has declined significantly in both cultivation and consumption in the region.

"Another danger of a more homogeneous global food basket is that it makes agriculture more vulnerable to major threats like drought, insect pests and diseases, which are likely to become worse in many parts of the world as a result of climate change," said Luigi Guarino, a study co-author and senior scientist at the Global Crop Diversity Trust.

"As the global population rises and the pressure increases on our global food system, so does our dependence on the global crops and production systems that feed us. The price of failure of any of these crops will become very high."

The authors noted a curious paradox: as the human diet has become less diverse on the global scale, many countries - particularly in Africa and Asia - have actually widened their menu of major staple crops, while changing to more globalised diets.

"In East and South-East Asia, several major foods - like wheat and potato - have gained importance alongside longstanding staples like rice," Khoury said. "But this expansion of major



More people are consuming more calories, protein and fat, and they rely increasingly on a short list of major food crops, like wheat, maize and soybean, along with meat and dairy products, for most of their food.

staple foods has come at the expense of the many diverse minor foods that used to figure importantly in people's diets."

These dietary changes are driven by a number of forces. Rising incomes in developing countries has enabled consumers to buy more animal products, sugars and oils. Urbanisation in many countries has encouraged greater consumption of processed and fast foods.

This is further compounded by factors such as trade liberalisation, improved commodity transport, multinational food industries and food safety standardisation.

However, the researchers noted some positive trends, such as in Northern Europe, where evidence suggests that consumers are buying more cereals and vegetables and less meat, oil and sugar.

The researchers suggest five actions to foster diversity in food production and consumption to improve nutrition and food security:


1. Actively promote the adoption of a wider range of varieties of the major crops worldwide.

2. Support the conservation and use of diverse plant genetic resources.
3. Enhance the nutritional quality of the major crops on which people depend.
4. Promote alternative crops that can boost farming resilience and make human diets healthier.
5. Foster public awareness of the need for healthier diets, based on better decisions about what and how much we eat as well as the forms in which we consume food.

"International agencies have hammered away in recent years with the message that agriculture must produce more food for over nine billion people by 2050," said co-author Andy Jarvis, director of policy research at CIAT and leader for climate change adaptation with the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), which CIAT leads.

"Just as important is the message that we need a more diverse global food system. This is the best way, not only to combat hunger, malnutrition, and over nutrition, but also to protect global food supplies against the impacts of global climate change."

The comprehensive study used data from the Food and Agriculture Organization of the United Nations (FAO) and encompassed more than 50 crops and more than 150 countries from 1961 to 2009.

The study is published in the *Proceedings of the National Academy of Sciences*. 

Self-contained dewpoint instrument

The DryCheck from Michell is an accurate, stable dewpoint instrument that includes a built-in simple sampling system. Its compact size allows the instrument to be installed in a number of dewpoint measurement applications, such as compressed air dryers, ozone generators, plastic moulding machines and industrial gas manufacture.

All components are housed in a rugged IP65-rated polycarbonate case which can be wall mounted at a point close to the gas sample. A clear cover protects the display and sample flowmeter.

Gas connection is provided using 'quick connect' push fittings, suitable for use with 6 mm OD Teflon tubing. Mains power input, connection to the 4-20 mA analog output and the two user-programmable, voltage-free relay contacts are all easily accessible behind the lower panel.

The instrument uses Michell's Easidew On-Line to measure dewpoint in the range -100 to +20°C dewpoint, or moisture content in the range 0 to 3000 ppm. It is based on Michell's Ceramic Moisture Sensor.

The system includes a 0.3 µm particulate filter element, a monolithic sampling block to house the Easidew Transmitter and a valve and flowmeter for setting the sample flow. The filter element is easily replaceable to ensure that the sensor is protected.

All components are rated to 10 barg and the instrument can be configured to measure dewpoint at either system or atmospheric pressure. The DryCheck has a clear 20 mm red LED display which can be programmed to display dewpoint in °C or °F or moisture content in ppm. It also provides a 4-20 mA output and 2 off alarm relays.



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Make haste, use waste

New Zealand researchers are working to create silk purses from sows' ears - literally. Well, almost.

The Bio-Resource Processing Alliance (BPA) is granting funds of up to NZ\$2.5 million per year over five years to help NZ biological-based manufacturing businesses gain maximum value from waste and by-products while reducing the environmental impact of primary production and manufacturing.

"The challenge of how to capture more value from waste in our primary industries is huge. For example, nearly half of New Zealand kiwifruit are not of sufficient quality for direct export, 20% of harvested trees in New Zealand are left on the ground and a significant amount of material from mussel harvesting is by-catch that gets thrown away," said Trevor Stuthridge, BPA general manager.

"The BPA was established to help turn these types of wastes into products with export potential. Four research partners - AgResearch, Callaghan Innovation, Plant & Food Research and Scion - are working with eligible organisations to apply new technologies and product opportunities to waste streams from New Zealand's forestry, marine, agricultural, horticultural, animal and microbiological industries."

The first BPA-funded project is being carried out at Waikato Innovation Park. Avocado Oil New Zealand is working to scale up commercial production of pure avocado powder - a project that started on a small scale in 2013.

Waikato Innovation Park is home to New Zealand's first and only independent product development spray dryer.

The pulp from blemished and other non-saleable avocados is dried into a high-value powder in the Innovation Park's spray dryer for use in cosmetic, nutraceutical and food products. Last year, the company launched a world-first 100% pure commercial avocado powder product, Avopure, which



is selling successfully in the USA, Japan, China and Australia.

"It is the first premium avocado powder available that contains no added fillers or carriers and contains higher levels of potassium, fibre and energy," said Brian Richardson, Avocado Oil New Zealand's executive director.

With support from BPA, the Innovation Park's FoodWaikato division is further improving the drying process with the aim of boosting commercial opportunities. The BPA has allocated NZ\$15,000 to research by Massey University scientists and NZ\$13,000 towards modifications to the FoodWaikato spray dryer.

"Avocado pulp is extremely fibrous, so the BPA is working with us to find ways to break down the fibre and also decrease the thickness of the raw product. Because the product is so thick, this reduces how quickly we can process it through the drier. The aim is to increase throughput while maintaining the natural green colour of the raw fruit, and the preserving quality," said New Zealand Food Innovation Network business development manager Shane Kells.

Once the process has been refined, FoodWaikato will be able to help other companies duplicate the process with other waste foods.

"As far as we are aware, worldwide no one has come up with a commercially viable solution to drying pure fruit or vegetable powders through a spray dryer at a fast enough rate that can satisfy projected market demand. If we can crack this challenge, we can help New Zealand growers capture enormous export value from their waste streams," Kells said.

FoodWaikato is trying to spread the word to food innovators in New Zealand and Australasia that it is here to help.

"The Waikato Innovation Park's wider purpose is all about creating economic value for our region and the country by supporting companies to develop new products and new markets," Kells said.

"FoodWaikato's purpose is to contribute to the park's wider aim by supporting food innovators. Avocado Oil New Zealand's story is just one example of how we're making that happen."

The NZ Ministry of Business says the BPA will add NZ\$100 million of additional value to the NZ economy by 2020 by applying its outcomes to secondary streams from the country's forestry, marine, agricultural, horticultural, animal and microbiological industries.

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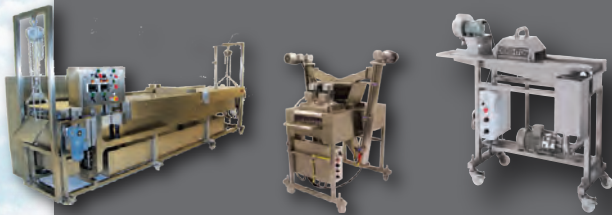


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Which inspection system is right for you?

Anecdotally it is claimed that it costs five times as much to recall a product as it does to distribute it and this does not take into account other costs that will be incurred such as legal claims, product disposal, loss of reputation, loss of market share. A sure way to avoid these costs is to avoid recalls and you can do this by identifying and fixing any out-of-specification product before it leaves your plant. Modern inspection systems can help you to check, detect and respond to problems but the question is which inspection system is right for you?

Proper management of risk always involves assessment of what exactly could go wrong, the effects it might have and the likely consequences, including costs. Legislation often demands that a food business take reasonable steps to prevent such events. This naturally leads one to examine the possible prevention steps and to assess their cost.

Machine vision systems dramatically increase the number of inspections; reduce human error, eyestrain or repetitive motion injuries; and allow an increase in production speed and accuracy.

Know your product and process

Choosing an inspection system without knowing what you are looking for is a sure way to purchase a failure. What are the biggest concerns before your product leaves your door? Weight? Packaging? Contaminants?

Where do most errors occur in packaging? What contaminants are you likely to find, what contaminants do you want to check for, and where do they come from? Is your product homogenous or multitextured? Do you need to inspect several different products on one line? How is the product packaged and will the packaging interfere with the detection method?

Ideally, you want to find problems early in the process to reduce the cost of rework or scrap. To do this you must not only know what issues you are looking for, but also determine the optimal place in the process to detect them. This information will influence which technology is most applicable.

Other factors to start considering include:

- Line speed: The inspection system must be able to keep pace with your line speed.

- Integration: The inspection system must be able to 'talk to' and be integrated into your process automation and data collection systems.
- Futureproof: The inspection system will probably have a 5+ year life span so you need to ensure that it will have the capacity to cope with future increases in line speed and throughput.
- Hassle-free: You can't just stop your plant while you wait for a solution if the inspection system has problems - choose a supplier who will be available with assistance and spare parts in a timely manner if the system does not perform as per specification.
- Automation: Automated systems use software to make defect decisions and do not rely on the operator's vision. The software compares the image with preset measurements and rejects defective products automatically. If a product is rejected, it can be removed with an automated rejection mechanism, such as air blow-off systems, drop flaps, retracting conveyors or sweep arms.

Once you have determined what you want to achieve you can start looking at the different inspection systems that are available.

Visual inspection

Machine vision inspection systems can be used to:

- inspect the presence, position and formation of a barcode or use-by date;
- validate the presence and position of labels;
- check closures of tamper seals, correct caps by colour;
- detect fill levels in bottles or jars and the packaging's content;
- sort food and beverage products based on marking;



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- count products;
- provide 360° inspection where several cameras can capture images which are then pieced together.

Due to automation, not only can vision inspection systems dramatically increase the number of inspections (compared with manual inspections), they can reduce human error, eye-strain or repetitive motion injuries and allow an increase in production speed and accuracy.

These systems offer an immediate and traceable return on investment, and their affordability has opened up this option to small and medium-sized enterprises as well as larger ones.

As an added benefit, the systems can be integrated into other production line technology, meaning your automated solutions work as one. Any faulty products can be redirected for rework, repackaging or relabelling, or rejected if the error cannot be rectified.

Checkweighing

Modern checkweigh systems do more than just check the product's weight. They can pay for themselves in a very short space of time by controlling overfills as well as preventing underfill. Reducing overfill tolerance by as little as 10% can increase batch yield considerably - and this can easily be achieved at full line speed.

Contamination detection

A well-developed Hazard Analysis Critical Control Point (HACCP) plan can help prevent, reduce or eliminate foreign contaminants in raw materials and finished products. Depending on your product and packaging, technology such as X-ray inspection or metal detection systems can help you in your foreign materials reduction program.

Metal detectors and X-ray systems for food applications must be very sensitive, easy to use, fully automatic, fast, extremely robust, reliable and cost-effective. They need to be able to run for many years in all types of factory environments and make reliable pass/fail decisions on literally millions of products. A successful system will have a high level of success in finding contaminants, but minimal false detections.

Finding the system you need now, while taking into consideration any future changes, is a balance, and will require you to plan ahead. It is important to have an inspection system adequate for the task, but avoid 'bells and whistles' that add capability you may never use, and cost.

The only way to be sure that a system will work for you is testing. Seed product with expected contaminants and then see if the process finds them at an accuracy level in line with your predetermined risk acceptability.

X-ray systems

The contaminant-detection capability of X-ray systems is directly related to the density of both the product and the contaminant: the denser the contaminant, the darker it will appear on the image and the easier it will be to identify.

X-ray inspection systems can be used to detect several types of contaminants, but there are many others that an X-ray system may find hard to detect, including cardboard and paper, hair, insects, low-density plastics and stones, soft bones and cartilage, wood and thin glass (such as fluorescent tubes).

While X-ray systems can be more versatile than metal detectors, on the down side, they are more expensive and have a shorter expected life span.

Metal detectors

Today's metal-detection technology is extremely effective but there are some limitations to consider:


- Products packed in a metal container, wrapped within a metallised film or containers with a metal lid.
- Products with high salt and/or moisture content that reduce the sensitivity of a conventional metal detector.
- Non-metallic dense contaminants such as glass and stones, which can't be identified by an electromagnetic induction device capable of detecting metal only.
- Thin wire strands are problematic for metal detectors because of orientation.

Metal detectors work best for bulk conveyed or piped product, or products in small packages. In general, metal detection systems are less expensive than X-ray units and last two to five times longer.

Tandem systems

To find the widest range of contaminants possible, use a combined system: for instance, a metal detector can easily find aluminium, while an X-ray cannot; an X-ray can easily find glass and stone, while the metal detector cannot.

Also, X-rays can easily (and usually at no cost) inspect the inside of a package to assure product integrity.

Proper management of risk always involves assessing what exactly could go wrong, the effects and the likely consequences - including costs. Legislation often demands that a food business take reasonable steps to prevent such events. A good inspection system will be one of your best investments in managing your risks. 

Teflon tankwasher

The Chemitorus tankwasher from Tecpro is a low-flow, low-pressure tankwasher designed for use in small vessels, pipes and other difficult applications that previously required manual cleaning.

The Torus range is compact enough to be mounted inside pipework and is claimed to be powerful enough to replace standard spray balls and wash heads in larger vessels.

According to the company, the simple rotating-disc design gives complete coverage for a strong-impact burst rinse without wasting water.

Constructed from 100% Teflon, the Chemitorus is reportedly lighter and more resistant to chemicals than standard stainless steel. Tecpro claims the product provides similarly high standards of hygiene and durability to stainless steel.

Available in 180° and 360° wash patterns, the tankwasher is able to operate with a flow rate as low as 8 L/min and a pressure of 0.5 bar. It reaches a maximum wetting radius of 2 m and a cleaning radius of 1 m with a pressure of 2 bar and a flow rate of 20 L/min.

This can minimise water and effluent costs as well as reducing WHS risks associated with manual cleaning or high-pressure applications.

No spare parts are required and, according to the company, the combination of Teflon and the low-wear design means the tankwasher will require minimal maintenance over its lifetime.

It is easy to operate, simply screwing onto a 3/8" BSP F connection. It has a rated maximum operating temperature of 95°C and an ambient temperature of 145°C.

Tecpro Australia

www.tecpro.com.au



Fish-processing flowline

Marel has introduced ProCon Flowline fish-processing flowline. The system uses RFID technology to track all product on the line and monitor performance.

With real-time feedback, dashboards display data on individual operator performance, which the company says enables production managers to improve overall yield, throughput and quality.

The basic principle of the flowline is to replace traditional manual table processing, where the raw material is constantly stacked and stored and then manually transported between processes. The flowline enables a continuous flow of the raw material to and from operators.

The flowline conveys product in baskets to and from the line, allowing for a high volume of product to be conveyed to and from the workstations. Compared to a manual table system, this involves less handling

and decreases processing time, the company says. Handling all raw materials in a continuous flow increases capacity and can increase worker productivity.

Suitable for trimming various types of fish fillets, the flowline is also suitable for hand filleting whole fish. It is claimed to have low maintenance costs.

The flowline has data integration directly to Innova Filletting and

Trimming - a solution that can help processors improve performance by gaining total control over yield, throughput and labour efficiency throughout the filleting and trimming process.

Marel New Zealand Ltd

www.marelfoodsystems.com



Design software

Intergraph has released SmartPlant P&ID 2014, the latest version of its engineering solution for creating, maintaining and improving plant configurations. SmartPlant P&ID 2014 features updated ducting and instrumentation diagram functionality and the solution scope has been extended with enhancements to more efficiently support work processes for project execution and plant operations and lower the cost of ownership.

The version's ducting and instrumentation diagram (D&ID) capability lets users create a schematic representation for air handling or process systems. The version configures the ducting system with the connectivity, components and instruments that can next be used in downstream tasks like SmartPlant Electrical and SmartPlant Instrumentation and, ultimately, the physical design in Intergraph Smart 3D solution.

Using the version with the D&ID extension offers clear benefits to clients designing air handling and/or process ducting systems. The connectivity provides the benefits of validating the design early on as the SmartPlant P&ID Engineering Integrity rules can be created to verify ducting-related engineering and safety practices.

Additional enhancements allow users to interface to SmartPlant Instrumentation for system controls; link to SmartPlant Electrical to power fans; and report on components and load balancing for the systems.

An API allows the users to interface to external calculation or analysis systems for more comprehensive system checks.

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Air-operated double diaphragm pump

Hurll Nu-Way is offering the SP100 Series air-operated double diaphragm pump, which is manufactured by Tuthill Corporation under the brand name Sotera Systems.

The pump includes the patented QuikSeal threaded ring construction. The threaded ring is designed for quick-turn access to clear ball checks and replace diaphragms. This eliminates the need for multiple fasteners (bolts) on the manifolds and fluid caps, reducing parts and complexity.

This can reduce 'pinch points' on the diaphragm to extend its life and, according to the company, can reduce maintenance time by up to 50%.

The patented QuickFlow air valve design includes a non-centring ceramic air valve with a fast tripover, which is claimed to result in a 67% reduction in pulsation, delivering up to 17.5 gpm for the 0.5" model and 57 gpm for the 1" model. In some applications, pulse dampeners can be eliminated, making the pumping system less complex. In addition, the company claims the pump offers a 20% improvement in air efficiency compared to other pumps.

The pump can be configured in materials compatible with a range of chemicals to make it suitable for a range of applications.

Hurll Nu-Way Pty Ltd

www.hnw.com.au

Motor-mounted starter

The SK 135E motor-mounted starter from NORD Drivesystems has an extended performance range for the economic distributed implementation of soft-start and reversing functions, for motors from 0.25 to 7.5 kW.

The compact starter integrates motor overload protection through PTC thermistor monitoring, mains and motor phase failure monitoring, I²t monitoring and magnetising current monitoring. The electronic, wear-free switching technology can replace motor circuit breakers, reversing contactors and brake rectifiers, which the company claims can render control cabinets unnecessary in large facilities.

As PTC thermistor connection cables and brake control cables are not required, installing the starter is fast and can save space. When the drives are ordered complete and wired with gearbox, motor and starter, the only assembly required is to tighten the screws and establish the electrical connection.

The soft-start function can reduce mechanical stress by preventing shocks during start-up and braking. A voltage boost can be programmed for applications requiring high break-away torques. Various braking modes are available.

The starter includes four potentiometers and four DIP switches for adjusting important parameters. LEDs signal the operating status. Parameterisation and diagnosis can be carried out via parameter boxes or via a PC using NORD CON software.



The company's distributed electronics program, which also includes the SK 180E and SK 200E series frequency inverters, provides the benefit of a uniform operation concept.

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Stainless steel panel PC

Interworld Electronics has released the APC-3593P projected capacitive touch stainless steel panel PC from Apex. The APC-3593P is housed in a fanless fully sealed stainless steel IP65 and IP69K certified enclosure with waterproof I/O connectors.

The APC-3593P is supplied with an internal 15" 1024 x 768 resolution LCD that features 400 nits luminance and 800:1 contrast ratio. A projected capacitive touch screen makes the APC-3593P suitable for operator panel and HMI control applications.

The APC-3593P has a built-in energy efficient Intel Atom D2550 1.8 GHz processor with 2 GB of DDR3 memory. An internal 2.5" SATA2 hard drive bay and an internal SD card slot are provided for system and data storage. Rear waterproof M12 I/O connectors provide access to two COM ports, four USB 2.0 ports, one Gigabit Ethernet port and DC power. The APC-3593P can operate from an 11~32 VDC power source.

VESA 75 x 75 rear mounting holes allow the panel PC to be securely wall or arm mounted.

The fully sealed APC-3593P is suitable for laboratory, food processing and industrial hosedown environments. For applications requiring a larger display, the APC-3793P features a 17" LCD while the APC-3993P includes a 19" LCD.

Interworld Electronics and Computer Industries
www.ieci.com.au

Barrel washer

With the largest barrel diameter of all Wyma Barrel Washers, the LZ Range is designed to handle large volumes of produce. It effectively and gently washes produce to remove dirt and small stones.

Located in a high position (above the tank rim), the shaped in-feed chute allows the barrel to be filled with produce to the maximum level. The auger blade provides increased produce churning to facilitate vigorous cleaning. Interchangeable blades allow users to select the amount of churning required, depending on produce type and conditions.

To maximise efficiency, the out-feed gate has a submersible hub to allow for higher water levels when the barrel is full. The lengthened transfer lagoon isolates the elevator loading process for improved flow control of existing produce.

The elevator, with a web belt and rubber flights, is set at a 35° incline to prevent produce slipping back down the elevator.

Three models are available to meet capacity requirements of up to 45 t/h.

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Alarm management suite

Honeywell's DynAmo Alarm Suite is advanced alarm management software that reduces the overall number of alarms while helping operators focus and respond to the most critical.

According to the Abnormal Situation Management (ASM) Consortium, ineffective management of nuisance alarms (alarms that sound unnecessarily) can lead to incidents that cost the process industry billions of dollars, and pose an increased risk of fatigue and stress for operators who must constantly make instant decisions on how to respond when an alarm sounds.

According to the company, DynAmo Alarm Suite can be used to help users reduce overall alarm count by as much as 80%, identify maintenance issues, and increase visibility of critical alarms that require urgent attention. Its customisable, role-based dashboard enables operators, engineers and managers to view the health of their alarm system at a glance. A key feature of the software is that it is compatible with many mobile devices, enabling personnel to view alarm metrics at any time, from almost any location. This ease of access enables more frequent monitoring and faster corrective action, which helps alleviate a major fatigue factor of operators.

The software can be integrated with the company's Experion Process Knowledge System (PKS), as well as any other control system. Honeywell also offers alarm management consulting, services and support, with worldwide coverage.

Honeywell Limited

www.honeywell.com.au



Photoelectric sensor

For higher efficiency and quality in the packaging industry, the DeltaPac MultiTask photoelectric sensor utilises Delta-S-Technology, which combines four PinPoint emitters and two receivers with SIRIC and distance measurement technology.

The photoelectric sensor detects object contours with radii between 1 and 20 mm - independent of the direction and irrespective of the object's surface colour - with a high level of immunity to

active and passive interference. The operating distance is between 30 and 40 mm to the front edge of the object. This means that packages do not need to be manually separated.

The sensor can ensure collisions are avoided for better space and time utilisation. The

DeltaPac provides information about how many packages are present in the process for full production monitoring.

The photoelectric sensor is available as a preconfigured device for fast and error-free commissioning. IO-Link, which is also available, enables tailored configuration and adaptation to match the desired application.

Sick Pty Ltd

www.sick.com.au



Frozen dough machine for soft cookies

Baker Perkins has introduced a concept for the production of frozen dough for soft cookies. The concept is based around a Baker Perkins TruClean wirecut with a series of standard modules for topping and paper handling.

It replaces the range of special-purpose frozen dough machines with a system that the company says is more flexible and hygienic.

Three additional modules are available for topping, paper cutting and paper slitting, and these are combined to create up to six versions for each width. The two industry-standard choices of bulk packing or depositing onto paper are both catered for.

On machines below 800 mm, a device cuts a paper roll into sheets of the appropriate length; on machines of 800 mm and above, the paper is slit and cut. Each choice is available with an optional topping and sprinkling unit.

Frozen dough cookies come in a range of sizes and flavours in most types of soft dough. The company has equipment ranging from 400 mm-wide machines for the craft sector to 1.2 m-wide units for highly automated industrial production. Outputs extend from 225 to 4500 kg/h.

SPX Flow Technology Australia Pty Ltd

www.spx.com.au



How Veuve Clicquot supervises its 400 fermentation tanks



Founded in 1772, the prestigious French champagne house, Veuve Clicquot, does not compromise on quality and in order to ensure that it always makes the finest champagne, the company is keenly aware that it has to be able to closely supervise its production systems.

The house makes its wine in the fermentation cellars in 400 tanks that vary in volume from 50 to 725 hL. Supervising these tanks where the alcoholic and malolactic fermentation take place is crucial.

Depending on their type, the tanks are fitted with up to three temperature-control sensors and manual or automatic valves, and up to 40 different variables per tank need to be watched - this makes a total of 16,000 variables!

In late 2012, the company found that the 10-year-old supervision system software being used in its fermentation cellar was at the end of its life and was no longer being supported. So it became necessary to replace it with a more recent and better performing solution.

"We needed to replace it with a lasting solution that would be supported for many years to come," says Franck Berruyer, sales engineer at Arc Informatique, the company behind the PcVue supervision system installed at Veuve Clicquot.

"In addition to various technical factors, we chose the PcVue 10 software suite because of the relationship of trust we have maintained with Arc Informatique and because the cost of the licences is economically suited to Veuve Clicquot's needs,"

says Stéphane Fournier, manager of SF2I, the company that developed and integrated the supervision software.

Another advantage of PcVue is that it has the same HMI as the previous software, meaning that the operators were able to use PcVue immediately.

Furthermore, Guy Jendryka, manager of the electricity, automation and industrial computing department at Veuve Clicquot, stresses that one of PcVue's strengths is that it is easy to adjust and program.

"With the previous system, you really had to be an IT specialist to be able to upgrade the software. PcVue is much easier to modify as needed.

"The development architecture is based on PcVue objects and greatly facilitated the supervision software's design. Because Veuve Clicquot's fermentation cellars contain 400 tanks of various types and volumes, the developers had to be able to use models so as to reduce programming, and hence maintenance times.

"The object development architecture saves time and simplifies operations. Once the model was made for the dozen existing tank models, it was simply a matter of instantiating the objects and automatically generating the communication variables," said Fournier.

With its virtual architecture, PcVue runs on a server that is installed in a secure, air-conditioned and filtered room protected from the damp. →

The application's maintainability and portability on new physical machines is thus simplified.

The fact that, in such a virtualised environment, the software is decoupled from the hardware means that reinstallation and commissioning times in the event of failure are considerably reduced.

Five web-based clients allow the cellar managers to view the supervision system and select its setpoints via their PC.

Operators can also monitor and control the software via a 42" touch screen that is installed in the lobby and within view of all visitors.

The software communicates with the programmable logic controllers (PLCs) over a Modbus TCP/IP network while a VPN (virtual private network) link is used to collect information from the tanks in the house's other fermentation cellars.

Fourteen fermentation modules are housed in the main cellar in Reims and four others are located in various towns across the Champagne vineyard at distances of 30 to 200 km from the main cellar. The VPN saves a tremendous amount of time.

"Being able to supervise all our fermentation cellars from one place eliminates the need to drive to each cellar. The supervision system issues an alert if a serious temperature control issue crops up," said Fournier.

Jendryka can now monitor all his tanks from his desktop PC. "PcVue supervisor has made our fermentation cellars smart.

We can monitor every aspect of temperature control from just one place."

Encouraged by this positive experience, Veuve Clicquot's technical teams quickly realised how PcVue could be used elsewhere. Not only does it supervise the fermentation of wine in the tanks, it also monitors the production of cold during cold stabilisation after final blending.

PcVue does not control these operations; it is used simply to view their settings and archive, log and track temperatures, faults and other data.

It is also used for effluent monitoring purposes at the two treatment plants - it manages acid and sodium-hydroxide levels, tracks pH and flow-rate values (weekly dashboard report for Dreal, the regional directorate for the environment, land-use planning and housing) - and to email resupply alerts to the managers when levels become low.

And that's not all - by the end of 2014 it will be running on the wrapping line (placement of foil capsules and labels on bottles prior to shipment).

"We are going to use it in particular to retrieve production orders from SAP and provide the laser ID to be affixed onto the glass and back label," says Jendryka.

ARC Informatique
www.pcvuesolutions.com

Automated pest management solution

Envirosol is an automated misting and integrated pest management solution that uses liquid carbon dioxide under high pressure to dissolve and propel active ingredients of pesticides as aerosols in enclosed spaces.

This allows the pest control application to take place outside of operating hours, which can reduce labour costs while providing occupational health and safety benefits.

During application, the pest control product is dispensed using fixed nozzles mounted on the roof line of the area being treated. When the product is dispensed and the liquid carbon dioxide released, it immediately vaporises, leaving small droplets of active ingredients suspended in the air. The droplets range in size from 2 to 20 microns.

The product can be used in a range of commercial sites, including those in the food manufacturing, packaging and importing industries.

Flick Anticimex

www.flick-anticimex.com.au

Breathable pallet wrap



Numerous products rely on aeration. Beer and fruit juice is packed hot and, wrapped with conventional stretch wrap, can be prone to condensation issues. Other products like dairy, ice cream and meat need cooling/deep freezing before transportation.

Air-Flow is a macro-perforated stretch film structure and has been developed especially for products that need to 'breathe'. The product is said to deliver reduced packaging costs and lower waste, eliminating condensation while allowing ventilation.

The film fulfils the need to tightly wrap goods on a pallet while giving the advantage of aeration. It is forklift friendly and has no reduction in width, plus good grip and visibility.

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Ion Air Gun

EXAIR's Ion Air Gun™ eliminates static and removes dust from three-dimensional parts prior to assembly, packaging, painting or finishing.

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Safety switch

The design of the external cam on the Schmersal AZ300 mechatronic safety switch, in the shape of a Maltese cross, allows the AZ300 to accept the actuator from any of three sides, providing mounting flexibility for either left- or right-hinged doors, or sliding guards.

The AZ300 also has integrated an RFID sensor to detect the actuator and indicate a closed guard. This non-contact operating principle limits wear on components, tolerates misalignment and offers the option of individual coding. The basic version of the sensor responds to any AZ300 target actuator; the 'I1' version only accepts the coded ID number of the specific target actuator which is configured during the first start-up; and the 'I2' version allows the teach-in process to be repeated, allowing replacement of a lost or damaged actuator.

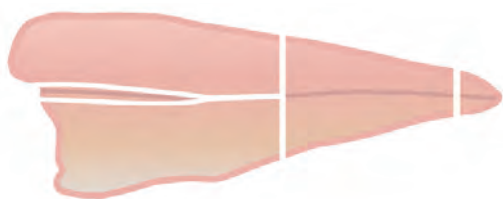
With continuous internal function tests and monitoring of the safety outputs, the AZ300 can be wired in series without detriment to the safety levels. Diagnostic LEDs on the sensor indicate various errors, misalignment and door open/closed signalling. For more advanced indication, the AZ300 is also available with serial diagnostics.

The AZ300 also offers adjustable latching, which provides a holding force of 25 N or 50 N. Lockout/tagout can be achieved by placing padlocks through the key of the actuator, preventing the guard from closing.

The AZ300 meets the requirements of Cat 4, Performance Level e or Safety Integrity Level 3; and because of its protection class IP69K, it is also suitable for use in hygiene-sensitive areas.

Control Logic Pty Ltd

www.control-logic.com.au



Water-jet trimming robot for whitefish processing

The Marel Flexicut is a trimming robot for high-precision bone detection and removal in whitefish processing. The machine incorporates two processing steps: locating the pinbones and cutting/trimming to remove the bones. The equipment consists of high-resolution X-ray detection, image control and a water-jet cutting mechanism for removing pinbones.

By using water-jets for the bone removal process, the machine can perform a variety of cutting patterns, and the angle cutting option allows it to follow the curved lines of the bone frame closely, further reducing pinbone material. The company says this allows for yield gains in the loin.

The automated process enables processors to produce bone-free products with little manual handling and introduce products such as skin-on loins and baby fillets.

The X-ray scanning and water-jet cutting are performed on the same belt. This means that there is no risk of movement between the bone-detection and cutting processes, improving accuracy.

An optional built-in blade cutter is available to cut the tail piece.

Marel New Zealand Ltd

www.marelfoodsystems.com

Process workflow software

Proficy Workflow Version 2.1 software digitises and streamlines production, with one tool, and is designed to integrate business and production processes across systems and departments for reliable, repeatable process execution. It makes it possible to integrate existing automation and control systems, speeding response to out-of-spec HMI/SCADA conditions with appropriate action.

It can assist in real-time asset management, bridging operations and maintenance, and linking SCADA and CMMS, improving uptime. Its task management capabilities allow users to capture the best practices of experienced operators and guide all workers with step-by-step instructions.

The latest version provides improved performance and scalability for large system deployments, allowing companies to replicate production processes across their organisation for increased consistency, quality and efficiency.

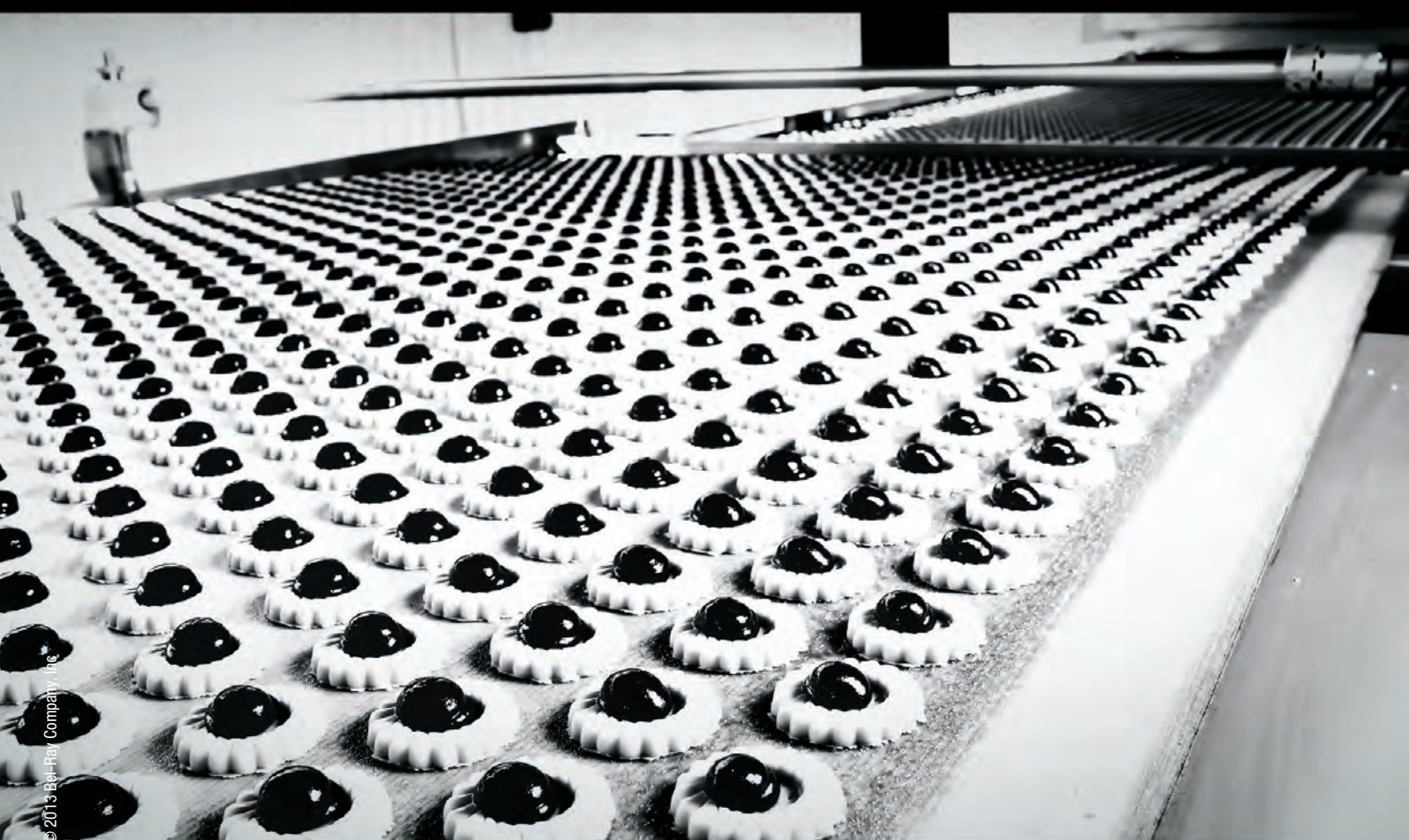
It offers improved capabilities for enforcing and tracking operator compliance, particularly important in highly regulated industries. Companies can verify documents and actions through enhanced electronic signatures, allowing them to move faster from critical issue detection to resolution thereby potentially decreasing the size of a recall or even preventing one.

Proficy Workflow is also said to provide significantly greater ease of use for defining and managing tasks, allowing companies to digitise operational processes faster and without IT resources. Production experts can more easily document processes, leveraging a simple graphical environment and re-usable templates.

GE Intelligent Platforms Asia Pacific Pte Ltd

www.gefanuc.com

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Campbell Soup senses demand with Terra Technology

Leading US soup maker Campbell Soup Company plans to upgrade to the newest version of Terra Technology's Demand Sensing solution. Campbell's says the upgrade will enable its forecast accuracy to better meet the needs of retailers and consumers.

Demand Sensing provides an automated way for manufacturers to extract value from big data by using pattern-recognition algorithms to create the best possible prediction of future sales for every item in every location.

"Sensing product demand is particularly important in today's increasingly complex marketplace," said Patrick Folan, vice president of supply chain for Campbell Soup Company.

"Following our recent implementation of SAP's Advanced Planner and Optimizer (APO) tools for supply chain management, upgrading to Demand Sensing 5.0 was the next logical step. Demand Sensing allows us to make supply decisions using forecasts reflecting current market realities rather than historical estimates. Better forecast accuracy will further our efforts to improve customer service, without the burden of carrying unnecessary inventory."

The availability of data across all parts of the supply chain has grown exponentially in recent years. Automating the use of this data to better understand customer behaviour is an important step in creating efficient demand-driven operations, especially for heavily promoted businesses or companies where innovation is central to their strategy.

Access to accurate daily forecasts helps manufacturers improve customer service, grow revenue by increasing on-shelf availability, free cash and improve return on capital. Terra's Demand Sensing is currently used by manufacturers to plan and execute operations in more than 160 countries.

"In 2004, Campbell Soup Company was the first company to implement Terra's solutions and reap the benefits of Demand Sensing's improved forecast accuracy," said Robert Byrne, Terra Technology's CEO.

"We are proud to play a role in the company's continued leadership and are glad they continue to see value even with their new planning system."

Terra Technology
www.terratechnology.com



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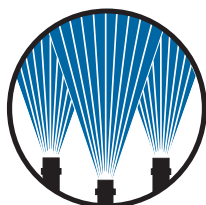
Its ergonomic design also reduces hand fatigue.

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Colour-coded buckets

The Vikan colour-coded range of products is designed to improve a company's internal hygiene and allergen control, and make it easier to maintain HACCP/quality management systems to comply with all hygiene audits.

Vikan has launched a range of pink products, including buckets. The company now offers products in nine colours: green, blue, red, white, yellow, black, purple, orange and pink.

All Vikan tools are manufactured with FDA-compliant materials that are suitable for use in food production areas, the pharmaceutical industry and other industry sectors.

The colour-based system supports an effective but simple cleaning procedure. Colour-coded cleaning tools help to minimise cross-contamination between different areas.

WR&D Wells Pty Ltd

www.wrdwells.com

Compact safety light curtains

The compact Schmersal SLC440COM series safety light curtains and SLG440COM series safety light grids incorporate highly visible status signalling in a rugged housing.

The profile length corresponds to the protective field height to allow for optimal installation with the application.

Operating status can be seen from a distance. The end cap of the receiver unit is moulded from a semitransparent plastic that is illuminated by LED, showing green for proper operation and red when the protected field has been interrupted, or flashing red to indicate fault conditions.

Like Schmersal's other Type 4 safety light curtains, the SLC440COM series features a one-piece extruded, reinforced housing in a compact 28 x 33 mm rectangular profile. This housing profile is claimed to be less susceptible to mechanical damage and misalignment from torsion or bending.

The safety light curtains are used for the protection of hazardous areas and are available with resolutions of 14, 30 or 35 mm and protection field heights between 330 and 1770 mm; also available as safety light grids (SLG440COM) with 2, 3 or 4 beams for perimeter guarding. Both series

are suitable for use in safety circuits up to PLe (EN 13849) or SIL3 (IEC 61508).

Control Logic Pty Ltd

www.control-logic.com.au

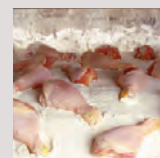


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Level sensor for foaming media

Sick's LFP INOX level sensor offers exact level measurement in media with strong foam development. The measuring principle of the guided microwave ensures high measuring accuracy, while the hygiene-compliant design makes it suitable for applications in the food and beverage industries.

The sensor can detect the difference between liquid media and foams or adhesions due to its time domain reflectometry (TDR) measuring principle (ie, a guided microwave).

The measuring probe is CIP and SIP resistant and can be shortened from the maximum measuring range of 4 to 200 mm. It is made from FDA-certified food-grade stainless steel and has a polished surface with $Ra = 0.8 \mu m$, which facilitates residue-free cleaning, minimises the adhesion of product residues and thus prevents the multiplication of bacteria and other microorganisms.

The changeable, hygienic process connections are made from the same material and meet the same hygiene standards. The level sensor has been certified by the EHEDG (European Hygienic Engineering & Design Group) and conforms to the 3-A sanitary standards of the US food industry.

The sensor combines continuous level measurement with the detection of limit levels. Display, switchable analog output 4-20 mA or 0-10 V, IO-Link for individual parameterisation, diagnosis and visualising options, and two binary outputs are integrated in a compact sensor housing which meets the requirements of both enclosure ratings IP67 and IP69K.

The cuttable probes and interchangeable process outputs make the sensor versatile in use. According to the company, it offers easy commissioning, maintenance-free operation, is influenced only insignificantly by the properties of the medium measured and does not require calibration.

Sick Pty Ltd

www.sick.com.au

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Cool-Fit is a complete pre-insulated, lightweight, UV-resistant and cold-weldable plastic piping system which keeps conveyed liquids at a constant temperature.

It is suitable for commercial refrigeration, breweries, wineries, food and beverage production, cold stores, cooling towers and safety shower systems; or

anywhere where maintaining temperature is of importance. Cool-fit uses an outer UV-grade HDPE jacket with polyurethane insulation and 100% liquid- and vapour-tight seals to ensure the inner pipe is shielded from external temperature changes.

The system is light to transport, requires less support infrastructure than copper-lagged systems and installation can be completed without hot welding. This makes the system suitable for installation in critical service areas and areas where hot work is not permitted, such as hospitals and data centres.

It is suitable for use in temperatures ranging from -50 up to +40°C and a maximum pressure of 10 bar, and can be buried or installed outside.

Fusion

www.fusionaus.com.au





Pneumatic valve control unit

Designed as a more compact version of the type 8690, Burkert's 8697 pneumatic control unit with position feedback and LED status indication is available as a pneumatic unit or feedback for Element valves with 50 mm actuators - as well as a pneumatic control unit for Classic valves with actuator sizes 40, 50 and 63 mm. The head can also be used as a feedback for Classic actuators of all sizes, from 40 to 225 mm.

The type 8697 replaces the type 1062, which previously offered position feedback (but no pilot) for Classic valves. It also offers original advancements such as an integrated pilot valve with manual actuation and LEDs for indicating device status. Integrating this head offers a simplified way to create a decentralised automation device, improving overall process speed and allowing independence and therefore creativity in process design, leading to optimised systems.

Using the type 8697 as a pneumatic control unit eliminates the need for a control cabinet with hoses leading to the respective valve. This simplifies system design and minimises the control air consumption for drive switching.

Combining the type 8697 with a process valve from the Element series results in an efficient process with an EHEDG-compliant valve system - with high-level IP protection, as well as an integrated control air supply with additional spring chamber ventilation. The 8697 is aimed at the hygienic and water segments, however its dynamic design allows it to be used in the general process industry.

Burkert Fluid Control Systems

www.burkert.com.au

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Managing poultry contamination with software modelling tools

Leading Australian poultry company Baiada Poultry plans to integrate a customised version of Battelle's software modelling program PRIA to help manage the risk of *Salmonella* and *Campylobacter* outbreaks.

"A recent Consumer Reports investigation in the US found contamination in 97% of the chicken it tested," said Brian Hawkins, Battelle research leader.

"Clearly it's a risk for the companies around the world trying to provide safe products, and to the consumer who wants to eat safe food."

PRIA - Probabilistic Risk Informed Analysis - is a software and modelling tool that allows food safety and defence professionals to proactively assess the effectiveness of mitigation strategies well before an event occurs.

In developing PRIA, Battelle's scientists and engineers worked to evaluate planned responses to incidents ranging from biological and chemical attacks in public gatherings to the intentional contamination of a water supply.

PRIA uses powerful mathematical algorithms to perform rapid simulations that take into account all the variables involved in the process, down to the granular level, in order to pinpoint areas of risk.

Baiada Chief Scientific Officer and Regulatory Affairs Manager Anthony Pavic says he believes PRIA is the right tool to improve on current methods. "PRIA will let us move away from spreadsheets and let us perform high-quality assessments that are quicker, more mathematically robust and better documented for regulatory purposes."

While Baiada's system is customised to the poultry processing industry, PRIA can be adapted to address other foods with common contamination concerns, such as leafy greens and beef. Battelle says the software tool will enable food companies to align with future regulations calling for risk-based assessments, such as those anticipated in the Food Safety Modernisation Act (FSMA).

Battelle
www.battelle.org



Temperature monitoring relay

Relpol has released its MR-ET1P Temperature Monitoring Relay in Australia.

Sometimes called a PTC or thermistor relay, these devices monitor the temperature of a motor winding, using up to six PTC thermistors. If overheating is detected, the single-pole changeover contacts operate and the motor control shuts down, potentially saving the motor from damage.

The relay includes: DIN rail mounting; monitoring for a short circuit or wire break condition in the thermistor line; and a

built-in test function with integrated test/reset key on the front panel. An external reset input option is also available.

Control Logic Pty Ltd
www.control-logic.com.au

Multiport valves

Robolux multiport valves are designed for clean and washdown areas, and can be combined with Burkert's Element control heads to provide decentralised automation of hygienic processes.

Based on diaphragm valve technology, the design of the valves combines independent dual switching functions in a single body, with single diaphragm and actuator. The compact design occupies approximately 50% less space than traditional valve manifolds, and is more easily sterilised. Low internal volume and elimination of dead leg supports faster cleaning and a higher product yield, with the compact construction also streamlining installation and maintenance.

The combination of the multiport valves with Element control heads is claimed to present new possibilities for the decentralised automation of hygienic processes. The integration of all automation functions within the control heads allows the valves to be equipped at field level with required automation components, including pilot valves, electrical feedback units and optical status indicators. The control heads also integrate optional fieldbus interfaces, allowing up to 62 valves to be connected to a PLC in series by a single 2-wire line.

Typical applications are found in hygienic food and beverage, pharmaceutical and biotechnology processes. Manufacturing applications where dosing chemicals carry a high per-unit cost are also indicated. The valves are said to support such applications with high reliability and repeatability, with an internal and external design that supports purity and sterile process conditions.

Burkert Fluid Control Systems
www.burkert.com.au



Potato strip sorting software

Key Technology has announced the availability of its potato strip Sort-to-Grade feature for all belt-driven G6 optical sorters - Manta, Optyx and Tegra. The patented, software-driven intelligence enables sorters to grade by count, accepting or rejecting each defective piece to control the quality of output to a defined grade, as defined by the processor.

According to the company, Sort-to-Grade assures product quality while increasing yield by 1 to 3%.

Historically, operators have had to adjust the sorter's accept/reject thresholds subjectively in an effort to make the grade, given inevitable fluctuations in the quality of incoming product. With Sort-to-Grade capability, accept/reject decisions consider how potentially passing a particular defect, based on its size and colour, will affect the overall final product quality in comparison to the processor's specifications.

Sort-to-Grade allows the sorter to control the quality of its output to a defined grade, objectively sorting by count in real time with 100% inspection. It increases yield by reducing unnecessary rejects while improving the consistency of final product quality and simplifying the operator's experience.

With the Sort-to-Grade software installed and running, the user sets the sorter to achieve the desired target grade and sets the desired sample size. The software then controls the mass flow of product by making piece-by-piece decisions to determine which are passed and which are rejected. If a product piece contains an allowable defect, the sorter adds it to the product flow by allowing it to pass. If a piece would result in product out of grade, the piece is rejected.

Target grade can be defined by the user as a percentage of tolerable defects in the bag or a percentage removal of incoming defects. The sample size is also user-defined, according to the grading practice used in the processing plant.

Key Technology Australia Pty Ltd


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COHRAL produces biogas for Oakey Abattoir

Oakey Abattoir, located on Queensland's Darling Downs, has launched an initiative to extract green energy biogas from its wastewater streams with the COHRAL covered high rate anaerobic lagoon. Energy generated by the anaerobic digestion plant will replace the millions of dollars worth of natural gas currently consumed by the abattoir.

Designed by Global Water Engineering (GWE), the plant will simultaneously reduce the plant's carbon footprint and produce wastewater far cleaner than typical waste lagoons.

According to Oakey Abattoir General Manager Pat Gleeson, once the plant has repaid its cost of construction through gas purchase savings (expected to take less than five years), it will then continue to deliver benefits and profitability far into the future. It was installed by environmental engineering and green energy firm CST Wastewater Solutions.

COHRAL technology - which is suitable for both livestock and cropping operations - uses concentrated anaerobic bacteria to digest 70% of the organic matter (COD, or chemical oxygen demand) in Oakey's wastewater to produce effluent of a far-higher quality than typical open lagoons.

The technology was adopted after an exhaustive selection process conducted by Oakey and its owner, Nippon Meat Packers. The Oakey Abattoir, which employs 750 people, adheres to Nippon Meat Packers' strict environmental guidelines and corporate responsibility ethic as a major operator across Australia and exporter to 34 countries.

According to the company, the technology can turn an environmental problem into profit by simultaneously enhancing water quality and lowering fuel bills. "Importantly, it helps us to guard against future price rises in the cost of energy and imposts such as a carbon tax," Gleeson said.

Another benefit of covered anaerobic lagoons is that the methane biogas produced within them is not only prevented from escaping into the atmosphere (where it is many times more damaging than CO₂ emissions) but is also harnessed

to generate energy - rather than wastewater being a heavy consumer of energy in processing and oxygenation.

The Oakey plant will feature re-use of the biogas in its boilers, where it is initially expected to replace usage of about 50,000 gigajoules of natural gas each year.

While GWE's anaerobic wastewater technology has been proven worldwide at more than 300 installations of totally enclosed tanks or reactors, this is the first time it has been applied to a covered lagoon, an application where it has

enormous further potential in countries with strong agribusiness sectors.

"In addition to the obvious waste-to-energy benefits, the process also helps curb odours that emanate from open lagoons in processing plants," said CST Wastewater Solutions' Managing Director Michael Bambridge. "This is becoming a much bigger issue in Australia as urban encroachment means agribusiness and expanding communities are located much closer to each other than previously.

"So instead of open lagoons being potential dumping grounds for environmental problems, closed installations such as Oakey Creek's represent an outstanding contribution to good community relations.

"Yet another outstanding benefit is that anaerobic digestion

produces reliable and predictable base-load power - unlike some other green-energy technologies, it is not dependent on the wind blowing or the sun shining.

"The environmental and cost benefits of COHRAL technology as deployed by Oakey Abattoir are outstanding and something we expect to attract world attention for agribusiness, including meat, dairy and crop waste processing."

The COHRAL lagoon was officially launched on 7 March by Minister for Industry Ian Macfarlane.

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Out-of-the-box compressed air solution for snack manufacturer



When London crisps and snacks manufacturer Kolak Snack Foods experienced an upturn in business and needed to increase its output capacity, the company decided to upgrade its production equipment, including its compressors.

In selecting new compressors, Kolak had several must-haves: reliability, continuity of output and no risk of contamination during process operations. To achieve this, Kolak chose to replace its existing units with Atlas Copco oil-free, rotary screw, full-feature machines.

The company installed two ZT 90 FF compressors and a ZT 90 VSD FF, which provide a guaranteed supply of high-quality air. As a result of the installation, the process air at Kolak's London plant complies with the ISO 8573-1 (2010) CLASS 0 standard of air purity, which embraces the Class 0 industry standard. Class 0 measures all three forms of oil contamination: aerosol, vapour and liquid, and Atlas Copco was the first compressor manufacturer in the world to achieve the TÜV-certified standard for its zero-oil, zero-risk Z-series of stationary compressors.

In order to meet production demand, the plant operates 24 hours a day, seven days a week, meaning that energy efficiency was also an essential consideration in the selection of new compressors.

"The Atlas Copco VSD compressor works in tandem with the base load compressors to cover all the main 7 bar plant air application duties, including heat exchanger, steam boiler and packing operations. This ensures that output is matched to demand in the most energy-efficient way, with the VSD compressor taking over any additional site load," said Rikin Lakhani, Kolak's director.

Each of the Atlas Copco compressors is a full-feature, total installation concept: a pre-wired and pre-piped solution, ready for use out of the box. According

to Atlas Copco, integrating the compressor's IMD dryer and its variable speed drive enables the compact package to supply high-quality dry compressed air at the lowest cost.

The IMD adsorption dryer eliminates moisture before it enters the air net to ensure a reliable process and contamination-free end product. No external energy is required to dry the air and, as the dryer needs no purge air, no compressed air is wasted. The pressure drop through the dryer is minimal, which also reduces the operating cost.

Kolak also entered into a 10-year Total Care agreement with Atlas Copco for compressor system maintenance and servicing. Atlas Copco undertakes responsibility for monitoring and maintaining the installation's performance.

"We invested in the best possible service package in order to make us futureproof," Rikin said.

Atlas Copco Compressors Australia
www.atlascopco.com.au



Ultrasonic level sensor

The Model ULSS ultrasonic level sensor provides non-contact, continuous ultrasonic level measurement of fluids for short-range applications. Ultrasonic technology paired with automatic temperature compensation provides accurate and reliable measurements in almost all conditions.

The product has failsafe logic that is easily configured to custom applications via free software, removing the need for target calibration. Using the software, the device can be programmed to transmit an output signal as well as set the four relays for control applications. The rugged design comes with a NEMA 6P submersible enclosure rating to ensure a long-lasting unit.

The level sensor has a narrow beam width and a short, selectable dead band. It is suitable for use with dirty, corrosive or sticky fluids, as well as in bulk containers, small tanks and sumps.

Dwyer Instruments (Aust) Pty Ltd
www.dwyer-inst.com.au

Air/gas flow meter

The ST75 Air/Gas Flow Meter, which measures fuel gas, process gas, inert gas, waste gases and air in small line sizes, is suitable for optimising the fuel-to-air ratio for plant burner-boiler control. The natural gas and air flow measurement provided by the meter allows engineers to monitor and control the precise amount of fuel and air needed to fire burners most efficiently.

The product is designed for small line sizes ranging from 6 to 51 mm. It provides the mass flow rate, totalised flow and media temperature. It is suitable for applications in a wide range of industries including chemical, electric power, food/beverage, advanced materials, pharmaceuticals, semiconductor and more.

The meter maintains consistent performance in rugged environments and features accuracy to $\pm 2\%$ of reading with $\pm 0.5\%$ repeatability over varying process temperatures. Its precision flow element has a no-moving-parts design that employs platinum RTD sensors embedded in equal mass thermowells with microprocessor electronics calibrated to laboratory standards for a range of gases. The product is equally suited for low- and high-flow operations and operates over a flow range from 0.01 to 950 NCMH depending on line size. For variable process conditions, the product is factory preset to a wide turndown range at 10:1 to 100:1.

The meter's remote mounting capabilities ensure an accurate and low-maintenance measurement solution in hard-to-reach locations. It is suitable for hazardous factory areas and crowded plants where explosive, flammable or toxic gases may be present near transmitting electronics. The remote mount transmitter, which includes a full digital display, can be mounted up to 15 m away from its thermal mass flow sensor in the process piping and connected via two 0.50" FNPT or M conduit connections.

The fully scalable dual 4-20 mA standard outputs are user-assignable to flow rate and/or temperature and a 0-1 kHz pulse output of total flow. The instrument can be ordered for input power with either 18 to 36 VDC or 85 to 265 VAC, with or without a built-in LCD digital display. The FM and CSA approved flow meter is enclosed in a rugged, all-metal, dust- and water-resistant NEMA Type 4X (IP66)-rated package and includes a rugged sensing element constructed with all welded 316 stainless steel and Hastelloy-C tips.

AMS Instrumentation & Calibration Pty Ltd

www.ams-ic.com.au



Understanding Allergen Labelling Training

What is VITAL 2.0?

Voluntary Incidental Trace Allergen Labelling (VITAL) is a tool developed by the Allergen Bureau. This tool provides a risk-based methodology for food producers to use in assessing the impact of allergen cross-contact and to identify appropriate allergen precautionary labelling.

Why use VITAL 2.0?

The use of precautionary labelling on food products such as 'may contain peanuts' or 'made in a facility that also processes nuts' is confusing for the allergic consumer. The VITAL tool uses scientific calculations to determine the risk of cross-contact allergens, which is more meaningful to consumers.



BOOK TODAY!

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Advancing Food Safety, SAI Global Ltd

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Rotary lobe blowers

Tyr rotary lobe blowers are high-performance generators for vacuum and overpressure which can be used for wastewater treatment, specifically in aeration applications. The robust design ensures the product is reliable and operationally dependable.

The blower is available in six different sizes, which can be individually adjusted to suit any application by selecting the drive and variable speed. The product is suited for aeration with overpressure, eg, aeration of fish tanks and biofilters. It is energy efficient and service friendly due to the non-contact design, whereby no operating fluid is required in the compression chamber.

The three-blade rotary blowers operate with two mounted parallel rotary pistons, which rotate in opposite directions within housing. The pumped medium is sealed in the space between the rotors and housing, where it is compressed and pumped through the housing to the gas discharge by the rotary motion and discharged. Once the medium has been compressed during the blower stage, it flows through the downstream discharge silencer.

The operating pressure, filter and gear oil level can be monitored via displays on the housing/sound-absorbing cabinet. The maximum nominal pumping speed offered by the largest of the blowers is 15.4-73 m³/min and many accessories are available, including an acoustic enclosure for noise-level reduction, making the blower very quiet. A non-return valve and heat sensor are also available.

Busch Australia Pty Ltd
www.busch.com.au

Compact volume flow sensors

The PSK AFS compact volume flow sensors from Phoenix Contact are based on calorimetric measurement and can detect consumption quantities as low as 0.06 Nm³/h. The sensors are also suitable for measuring operational consumption thanks to their large measuring range of up to 700 Nm³/h.

In addition to the IO-Link communication system that facilitates intelligent communication between the sensor and the controller, the compressed air counters can also output analog values and digital impulses, as well as measuring switching thresholds via two digital outputs. These versatile options for outputting flow and

temperature measurement data facilitate a wide range of connections to process and control systems.

The compressed air counters measure the current volume flow, the total volume consumed and the temperature of the compressed air in the monitored process. The devices offer a value and status display in addition to the numerous configuration and measuring options available via the IO Link, providing users with an overview directly at the sensor.

Phoenix Contact Pty Ltd
www.phoenixcontact.com.au



Industrial data logger

MatrikonOPC has released the Matrikon Industrial Data Logger, an intelligent automation data gateway that provides third-party connectivity, onboard data collection and intelligent data forwarding.

Suitable for capturing data at remote locations and forwarding it, the data logger connects securely to a centralised historian and transfers data to it, even in low bandwidth or unreliable network conditions. According to the company, the data logger combines reliable data delivery, connectivity and secure access control in an easy-to-use, low-maintenance device.

The data logger has low bandwidth requirements due to data compression. Flexible onboard data capture functionality enables selective, event-based data collection.

Data integrity and confidentiality are enforced via data encryption. The data logger offers reliable data delivery based on intelligent, loss-free historical data transfer functionality.

Matrikon Asia-Pacific
www.matrikon.com



Food for Thought

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Thermal imaging cameras in the food industry

In the food industry, it's essential to carefully control the temperature of perishable goods throughout production, transportation, storage and sales. Repeated warnings about illnesses due to tainted and improperly cooked foods highlight the need for tighter process control. Because this almost always involves a human factor, food processors need tools that automate crucial operations in a way that helps minimise human error while keeping costs down.

Thermal imaging cameras are such a tool. Using thermal imaging cameras, processors can make automated non-contact temperature measurements in many food processing applications. Video outputs and digital temperature data can be viewed on various monitors and computers via the Ethernet.

How it works

The main elements for non-contact temperature measurements in the food processing industry are a thermal imaging camera and associated software. They act as 'smart' non-contact sensors to perform 100% inspections, measuring the temperature of equipment, refrigerated products and cooked foods as they exit the cooking process.

Thermal imaging cameras are easy to use and small, and can be positioned almost anywhere as needed. They can also

be used to inspect package sealing and improve efficiency in other food processing operations.

Thermal imaging cameras have firmware and communication interfaces that enable their use in automated process control. Third-party software makes it easy to incorporate these tools into automated machine vision systems without the need for extensive custom-written control code.

The use of thermal imaging cameras in food processing is growing for applications such as:

- oven-baked goods
- microwave-cooked meats
- microwave drying of parboiled rice and other grains
- inspecting ovens for proper temperature
- proper filling of frozen meal package compartments
- checking integrity of cellophane seals over microwave meals



© nikkytok/Dollar Photo Club

- inspecting box flap glue of overwrap cartons
- monitoring refrigerator and freezer compartments

Thermography for quality assistance and product safety

Thermal imaging is first and foremost a quality assurance (QA) tool. Controlling the quality and safety of cooked meat products is an excellent use of this technology. A permanently mounted thermal imaging camera can record the temperature of, for example, chicken tenders as they exit a continuous conveyor oven.

The objective is to make sure the chicken is cooked enough but not overcooked and dried out. Reduced moisture content also represents yield loss on a weight basis. Thermal imaging cameras can also be used for inspection on microwave pre-cooking lines. Besides improving product quality and safety,

overall throughput can be increased. An additional benefit is reduced energy costs.

Equipment monitoring

In addition to cooked food inspections, thermal imaging cameras can monitor conveyor ovens. They can even be part of a feedback loop to help control oven temperature.

Another use of thermal imaging cameras for conveyor ovens is monitoring temperature uniformity across the width of the conveyor oven cooking belt. If a heating element inside an electric oven fails, or if there is uneven heating across an air impingement oven, one side of the product stream may be cooler. This can be quickly discovered with thermal imaging cameras.

Quality inspections of this sort are much more difficult with conventional contact-type temperature sensors. Thus, thermal imaging cameras can help correct variability and improve quality before the need to scrap a lot of product.



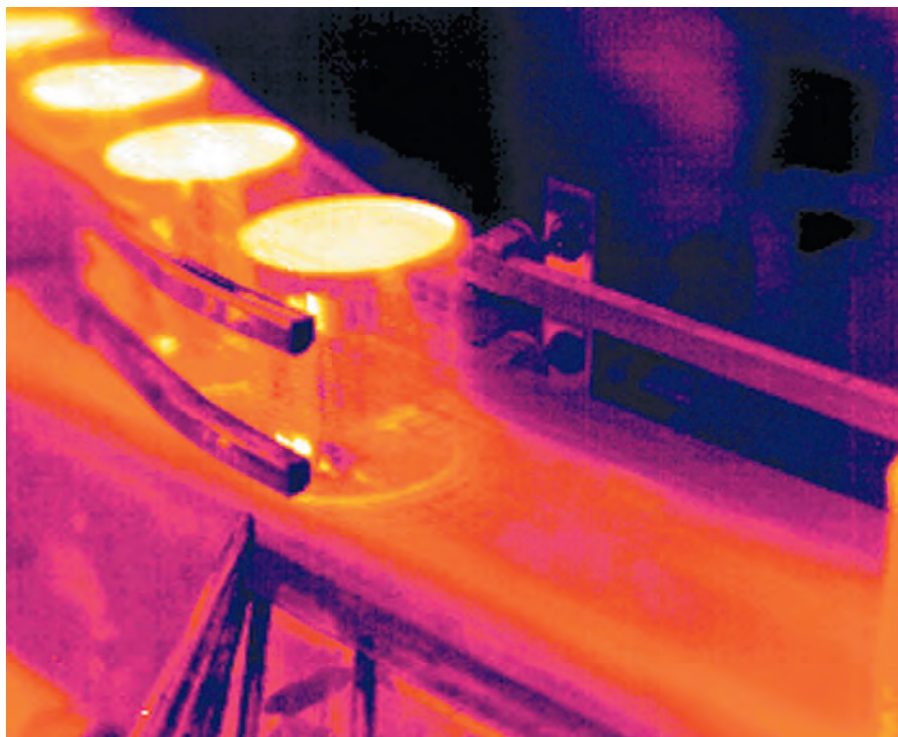
Packaging inspections

Software is available that allows thermal imaging cameras to locate objects and patterns in the images. One application for pattern matching is in the production of frozen meals. Thermal machine vision can use pattern recognition software to check for proper filling of food tray compartments.

A related application is automated 100% inspection of the heat-sealed cellophane cover over finished microwave meals. A thermal imaging camera can see heat radiating from the lip of the container where the cellophane heat-seal is formed. The temperature along the entire perimeter of the package can be checked by using the thermal image with machine vision software. This type of program matches the geometric pattern in the image and its temperatures against the temperatures in a pattern stored in a computer memory. An added function in such a system could be laser marking of a poorly sealed package so it can be removed at the inspection station.

An issue affecting product safety indirectly is the integrity of cartons that overwrap and protect food containers. One of the most cost-effective ways of sealing overwrap cartons is to use heated glue spots on the carton flaps. In the past, the integrity of the spot glueing was determined by periodically doing destructive testing on several samples. This was time-consuming and costly.

Because the glue is heated, a thermal imaging camera can 'see' through the cardboard to check the pattern and size of



Thermal imaging cameras are easy to use and small, and can be positioned almost anywhere as needed. They can also be used to inspect package sealing and improve efficiency in other food processing operations.

the applied glue spots. The camera can be set up to look at predefined areas of the flaps where glue should be applied and verify spot sizes and their temperatures.

The digital data collected is used for a pass/fail decision on each box, so bad boxes can be immediately removed from the production line. The data is automatically logged into the QA system for trend analysis, so a warning can be generated if an excessive number of boxes begin to fail.

Yet another application for thermal imaging cameras is monitoring container filling operations. Although this is seldom a product safety issue, it does affect yield and compliance with regulations. Different areas on the bottle can be defined and used to trigger an alarm and remove bottles that are under- or overfilled. Thermal imaging cameras are a better alternative to visible light cameras when a bottle or jar is made of opaque or dark-coloured glass or plastic.

Automating measurements

Application software currently available for thermal imaging cameras includes a wide variety of functions that support automated food processing applications. This software complements and works in conjunction with firmware built into thermal imaging cameras. The imaging tools and libraries in these packages are hardware- and language-independent, making it easy for food processing engineers to quickly implement thermal monitoring and control systems.

Thermal imaging cameras themselves provide the user with different operating modes that support correct tempera-

ture measurements under various conditions. Two functions commonly found in these cameras are a spotmeter and area measurements.

The spotmeter finds the temperature at a particular point. The area function isolates a selected area of an object or scene and usually provides the maximum, minimum and average temperatures inside that area. The temperature measurement range typically is selectable by the user. As an adjunct to the temperature range selection, most cameras allow a user to set up a colour scale or grey scale to optimise the camera image.

In conveyor oven applications, the area function is typically used because pieces of cooked product are often randomly located on the conveyor. The camera can be programmed to find and measure the minimum and maximum temperatures within the defined area. If one of those setpoint temperatures were to fall outside the user-defined limits, an application program running on a PC or PLC would instantly trigger an alarm, alerting the operator to check the thermal image on a video monitor or PC to find and remove the bad product and/or adjust the cooking temperature.

In the case of local monitoring, an IR camera's digital I/O can be used to directly trigger an alarm device without additional software. However, food processing often benefits from higher level analytics that are available in third-party software that runs on a PC.

These out-of-the-box solutions do not require the writing of application source code. By adhering to commonly used machine vision interface standards, such as GigE Vision, a wide range of functionality is supported.

A simplified block diagram of conveyor monitoring is shown. One thermal imaging camera is adequate for many applications, or a thermal imaging camera may be combined with a visible light camera to record other target object attributes, such as colour.



FLIR Systems Australia Pty Ltd
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316 stainless steel floor-standing enclosures

NHP has available the range of Eldon 316 stainless steel floor-standing enclosures which complete their extensive range of floor-standing cabinets. By offering the range of Multiflex 316 stainless steel, which is standardised around the mild steel offering while maintaining the same design, NHP says it can cater for all enclosure needs.

Moving to a single product platform offers a broad array of advantages to the customer including a vast reduction in the complexity that can often be experienced when it comes to accurate product selection for an application. By partnering with NHP for enclosure needs, customers will only need to be familiar with the 316 stainless steel product platform and the accessories are completely compatible with both enclosure lines.

The 316 stainless steel enclosure lines are designed to meet highly demanding functional and aesthetics needs and are manufactured using leading-edge technology. With this in mind, the range is ideally suited for the food and pharmaceutical industries, outdoor applications and marine environments as well as for use in complex applications requiring increased corrosion resistance.

The Eldon 316 Stainless Steel Floor Standing Enclosure portfolio comprises bayable and welded enclosures with standard dimensions ranging from 1800 x 600 x 500 mm up to 2000 x 1200 x 600 mm.

The double-door welded enclosures offer an innovative design and the highest protection rating - NEMA4X/ IP66. The EKDS range comes with a welded vertical divider and individual doors with an independent locking system. It is specially designed for use in sanitary washdown production environments.

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Compact temperature sensors

The Optitemp TRA-C10, TRA-C20 and TRA-C30 line of compact temperature sensors can be preconfigured with an integrated transmitter to meet the most common requirements for measuring range and immersion length, as well as process and electrical connections.

Although they are for different fields of application, the TRA-C10, TRA-C20 and TRA-C30 share the same basic design: equipped with Pt100 class A sensor element and build-in analog transmitter, they cover the temperature range from -50 to +150°C (+200°C without an integrated transmitter) for liquid and gaseous media. Accuracy is $\pm 0.15\%$ of measuring range. For immediate use, the measuring range is fixed and preconfigured to a 4-20 mA output with no programming required.

All three sensors come in standard immersion lengths 50 or 100 mm (or, on request, 25-500 mm). Classed IP67/65, the sensors are dust tight and can be used in wet outdoor environments. The solid mechanical design has no moving parts, making them highly resistant to mechanical stress.

The TRA-C10 is a hygienic compact temperature sensor suitable for OEM applications in the food and beverage, pharmaceutical or sanitary industries. It comes with process connection ISO 2852 DN25/38, and the electrical connection is a standard M12 connection. The TRA-C10 can be CIP cleaned.

The TRA-C20 is a compact temperature sensor for general process applications. It comes with G1/2 process connection and standard electrical connection valve EN 175301-803.

The TRA-C30 is a compact temperature sensor with process connection G1/2" as standard and M12 electrical connection.

Krohne Australia

www.krohne.com

Vibrating fork level switches

Typically used in challenging or hygienic applications demanding no moving parts or clean-in-place (CIP) fittings, vibrating tuning forks provide a reliable means for point-level switching. Each fork is trained on site to monitor specific media, ignoring changes in density, viscosity, conductivity, media foaming, tank agitation and vibration.

The Sitron V-Tork family of vibrating fork level switches offers a large range of configuration options including customised insertion length; threaded, flanged or sanitary fittings; relay, transistor or direct switching output; AC, DC or universal power supply models; and medium- and high-temperature models; as well as a range of plug and junction box terminations.

All wetted parts are made from 316 stainless steel, with a choice of Halar, PFA or epoxy coating, where required, for corrosive media. To prevent output chatter or false switching, each V-Tork unit has an adjustable time delay for response time.

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Coles is harvesting simultaneously grown herbs and barramundi

Urban Ecological Systems Australia (UESA) is growing herbs and barramundi simultaneously - with zero effluent - in Western Sydney. And Coles (and a \$1.9m Early Stage Commercialisation grant) has helped to make the low-energy, sustainable, organic food production system a commercial reality.

In a \$5m integrated glasshouse and aquaculture polyculture system on University of Sydney land in Cobbity, in Western Sydney, beds of herbs are linked by a complex system of pipes to water tanks containing barramundi. The concept is beautifully simple and effective - as the barramundi grow, their waste is biologically transformed into safe plant nutrients and then used to feed parsley, basil and coriander. The only way that water leaves the system is through evaporation from the plants. As no effluent is produced, the system is particularly suited to urban and residential environments.

It is estimated that 90% of UESA's income will come from herbs sold to Coles, with the barramundi accounting for 10%.

Forecast to produce 129,000 basil, parsley and coriander plants every 28 days and the equivalent of 15,000 to 20,000 kilograms of barramundi a year, UESA's polyculture system produces 10 times more organically certifiable food than traditional field horticulture.

UESA is not a simple overnight success story - seven years ago the polyculture system won an episode on the ABC's *New Inventors* program. Since then, with support from Commercialisation Australia, R&D facility scale-up and technology optimisation was achieved at a greenfield site near Narellan in NSW.

Now, a five-year organic produce supply agreement with Coles has given certainty to the commercialisation of the project.

In the future, UESA aims to be carbon neutral - which will be a rare outcome if it can be achieved for food production.

The company is looking at several renewable energy solutions including solar energy for heating and lighting in the glasshouse to become carbon neutral.

To replace chemicals, UESA already uses beneficial insects - such as parasitic wasps, predatory mites and lady bugs - to control harmful pests.

As part of UESA's lease arrangement with the University of Sydney, the company has a research agreement which allows academic research to be undertaken at the site. Currently, the company and university are working together to convert household food waste into insect larvae and then be processed into fish food.

Source: Commercialisation Australia - Value Proposition magazine, October 2013, pp 30-31.



Ready for the field?



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Being a field calibration technician is a tough job: you need to have many skills and carry multiple devices, environmental conditions can be challenging and constantly changing, documentation of data takes time and is difficult in the field and work efficiency requirements are demanding. However, having the right gear makes the work much easier and also more efficient. Learn more at beamex.com/readyforthe field

Pre-prepared pouches with dehydrated culture media

Merck Millipore has launched Readybag pouches with dehydrated culture media for pathogen testing in food. The pre-weighed, gamma-irradiated pouches - which can be used for either *Salmonella* or *Listeria* - are claimed to eliminate all media preparation steps and reduce typical sample preparation time by more than 50%.

The pouches eliminate autoclaving, media weighing and supplement handling. The only step required prior to incubation is the addition of sterile water, thus reducing sample preparation time and streamlining workflow.

The irradiation dosage added does not impede microorganism growth; its performance is similar to non-irradiated, autoclaved culture media. In addition, the Readybag Half Fraser Broth for *Listeria* incorporates culture supplements into its media, eliminating the time and expense associated with preparation and sterile filtration.

The pouches reportedly have a shelf life of three years, compared to three months for self-prepared prepared media, reducing costs and waste associated with media storage. In addition, the Readybag enrichment media come in a soluble granulated format which - unlike powdered media - compacts fine particles into small, uniform granules, thus reducing dust generation, dispersion and the risk of inhalation of hazardous or toxic substances.

The media is ISO 11133 compliant. According to the company, the pouches reduce complexity and the risk of contamination, increasing consumer safety and allowing final products to reach the market sooner.

Merck Pty Limited

www.merck.com.au



Milk allergen test

The Romer AgraStrip for Total Milk is available through Australasian Medical and Scientific Ltd. Previously to test for the presence of milk allergens, processors had to decide whether to look for casein or Beta Lactoglobulin as an indicator for allergenic residues. With the AgraStrip Total Milk, it is possible to test for both at the same time.

The product is based on lateral flow technology, which means that results are available in around 11 minutes without the need for any special equipment, and a laboratory is not required.

Results are read visually, and the limit of detection is 1ppm of milk protein. The test is suitable for testing food contact surfaces, raw materials and finished products.

Australasian Medical & Scientific Ltd

www.amsl.com.au



Viscometers and rheometers

Brookfield has improved viscosity measurement by combining the ease of touch-screen technology with the features of its DV-II viscometers and DV-III rheometers. The result is the Brookfield DV2T viscometers and DV3T rheometers.

A 5" colour touch screen guides DV2T users through test creation and data gathering analysis for fast and easy viscosity measurements. The product offers programming capabilities and results analysis, including data averaging and QC limits with alarms. The interface also provides customisable user levels, with password access for compliance with regulatory requirements such as 21 CFR Part 11.

The DV3T rheometer, with a 7" touch screen, conveniently displays viscosity measurement with temperature control, yield stress determination and on-screen data graphing and analysis. The fully automated instrument also allows for quick and easy single-point test capability.

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Multidisciplinary investigation of trans fat

Trans fat, derived from the partial hydrogenation of vegetable oils, is present in many processed foods and bakery items. But in the US the FDA is currently reviewing evidence that trans fats are not generally recognised as safe (GRAS) for any use in food.

Although the evidence linking trans fat with heart disease has mounted for years, the evolving science has at times been equivocal, largely because of two unique sources of trans fat: dietary and ruminant.

“While there is an almost unanimous view that trans fatty acid should be phased out to less than 1% of total daily energy consumption, a similar consensus has not been reached with respect to TFA from ruminant meats and dairy since the amounts likely to be consumed are modest and outweighed by nutritional benefit,” said Paul Nestel, MD, professor of medicine and senior faculty at Baker IDI Heart and Diabetes Institute in Victoria, Australia, when asked about that evidence.

Scientific evidence linking various health risks with the consumption of trans fat resulted in the FDA announcing a preliminary ruling that trans fats are not generally recognised as safe (GRAS) for any use in food. This preliminary ruling, which proclaims partially hydrogenated oils as food additives, triggered a public comment period that ended on 8 March 2014.


The FDA will now review the evidence that dietary trans fat adversely impacts human health, and then decide whether to restrict partially hydrogenated oils (PHOs) from the American diet, and by how much.

According to Joshua T Cohen, deputy director of the Center for the Evaluation of Value and Risk in Health and a research associate professor of medicine at the Institute for Clinical Research and Health Policy Studies at Tufts Medical Center, Boston, the benefit of restricting trans fat at the individual level is clearly positive. He further suggested recently that

“a comparison of FDA’s proposed regulation with other risks and with other measures to improve health reveals that it confers substantial individual benefits at a relatively low cost”.

Clinical Therapeutics features a special report in its March issue focusing on the science and policy leading up to the US FDA’s preliminary steps towards restricting industrially produced trans fatty acids at the federal level.

The report includes papers by Dr Nestel, Dr Cohen, R Rammy Assaf and Rishi Sood, MPH. Dr Nestel describes the cumulative evidence linking TFA and cardiovascular disease while Dr Cohen measures regulatory action by the FDA from a policy perspective. Mr Assaf, a recent intern at the World Health Organization Health Systems and Services in Geneva, Switzerland, and a student at the University of Miami Miller School of Medicine, provides context for FDA action by describing the history of TFA regulations. Finally, Mr Sood, health policy analyst, Bureau of Primary Care Access and Planning, New York City Department of Health and Mental Hygiene, describes the outcome of a voluntary TFA ban in Nassau County, NY. Dr Ryan, Associate Professor and director, Division of Primary Care/Health Services Research and Development in the Department of Family Medicine and Community Health at the University of Miami Miller School of Medicine, and Clinical Therapeutic Topic Editor for Endocrinology, Diabetes and Other Endocrine Disorders, summarises the trans fatty acid debate in his editorial, ‘No Longer Generally Recognized As Safe (‘GRAS’)’.

Clinical Therapeutics Updates can be freely accessed at the journal’s website. 

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The TVT-6700 texture analyser offers rapid, repeatable, cost-efficient and objective analysis of key characteristics including firmness, crispness, stickiness, cutting force, breaking force, chewiness, bending capacity, elasticity and more.

The TVT-6700 accurately measures position and force (weight) over time to provide objective descriptions of textural and physical properties of different food products like meat, dairy, snacks, confectionery, pasta, baked products, fruits etc.

Force, time and distance data is stored in tables and displayed as graphs. Results can be used to quantify optimal product qualities and specifications as a quality control tool or measure the effect of ingredients or process in finished products.

The robustness of the instrument makes it equally suitable in R&D or the production laboratory. The instrument is operated from an external PC or laptop connected with a USB cable. The software is intuitive and easy to use. Users can select predefined methods already loaded in the software or modify/create their own.

The instrument can be set for different test modes, such as single cycle, multiple cycles, hold until time, fracturability, tensile, adhesiveness and springback. A wide selection of probes, rigs and load cells to accommodate different testing conditions is available.

Perten Instruments

www.perten.com



E. coli and Coliform plates

One of the most common tests conducted by food and beverage manufacturers is finding and counting *E. coli* and Coliforms in waters, food products and environmental swabs.

E. coli and Coliforms are found in the intestinal tracts of mammals and so are traditionally used by microbiologists as an indicator of faecal contamination and the potential presence of other more serious enteric pathogens such as *Salmonella*.

Arrow Scientific offers an economical method for the enumeration of these organisms via the Compact Dry range.

The Compact Dry *E. coli* and Coliforms (EC) is a 3rd generation rapid with a number of advantages aside from lowering cost of testing. The ready-to-use plates are stored at room temperature and are packed in foil packs of four plates. As the plates have a self-diffusing membrane, there is no need to use spreaders, saving time and making the method simpler.

The inclusion of chromogenic ingredients makes the plates easy to read and interpret. Coliforms form pink to red colonies, and blue to purple coloured colonies are *E. coli* with Total Coliforms being the addition of these two. The three-dimensional growth of each colony makes interpretation easier if there is any doubt about what is counted.

These Compact Dry plates are a simple-to-use system that enables food and beverage manufacturers to test their own products quickly and economically.

AQIS has approved the Compact Dry EC plates to be used for the analysis of meat and meat products (including carcass surfaces) in Australia. The plates also have AOAC-RI, MicroVal and Nordval approval so the plates have wide international acceptance.

Arrow Scientific

www.arrowscientific.com.au

Salmonella test

BioControl has released a faster version of its Assurance GDS *Salmonella* Tq test. The current method provides results in as little as 18 hours and has full AOAC OMA approval (method 2209.03). The updated version has an eight-hour enrichment in mEHEC media, providing results in select matrices in just 10 hours, including sample processing.

The company's mEHEC media has previously been validated for use with Assurance GDS *E. coli* O157:H7 and Top STEC assays. The *Salmonella* test enables results for *Salmonella* in addition to *E. coli* O157:H7 and Top STEC from a single enriched sample.

The use of a harmonised enrichment media for these assays can help streamline testing programs and control costs by eliminating the need to prepare multiple samples. The media enables the fast test and release of product which can reduce costs, particularly in the beef and fresh produce industries.

The company has received AOAC-PTM Certification (#050602) for its Assurance GDS *Salmonella* Tq mEHEC method from the AOAC Research Institute's Performance Tested Methods SM Program. In addition to *Salmonella*, the Assurance GDS platform includes assays for *E. coli* O157:H7, Shiga Toxin Genes, Top 6 and 7 STEC, *Listeria* spp, *Listeria monocytogenes* and *Cronobacter*.

Australasian Medical & Scientific Ltd

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Be smart – take a shortcut! Readybag® dehydrated culture media pouches


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Value-added food processing is future growth hotspot

Deloitte has identified value-added food processing as one of the 25 growth hotspots to watch in the next 20 years. The firm says food processing offers huge potential for the economy.

The Deloitte report, *Positioning for Prosperity? Catching the next wave*, identifies the Deloitte Growth 25 (DG25) - a group of compelling growth opportunities for Australia over the next 20 years.

"Similar to the fluctuations of the wider agribusiness sector, the local food processing sector has had a bumpy ride of late. The lower-value, higher-volume end of the market has struggled to compete with overseas processors not weighed down by a strong Australian dollar (A\$) and relatively high input costs from labour and electricity," said Rob McConnel, Deloitte agribusiness leader.

"According to our analysis, Australia needs to move from producing commodity products to growing, processing and supplying premium produce. This is a sector in transition with a shake out of well-established players occurring alongside the emergence of specialists operating in the premium space where they are in a great position to exploit new market growth.

"After feeding ourselves, Australia can meet only a small percentage of Asia's current food demand - let alone its future demand. That suggests that our opportunity isn't so much to be the supermarket to Asia as its delicatessen - offering high-value, high-margin products.

"New Zealand has already done this, showing stand-out success in global dairy markets and turning its might in agribusiness into downstream manufacturing dominance as well. We are seeing increased interest from investment groups such as private equity, corporates and sovereign wealth funds in Australian food-processing assets.

"This is being driven by factors such as retailers' desire to virtually integrate their supply chain, trace produce from farm to store and significant upside in the agribusiness growth sector overall. While exposing them to the upside, investing in a number of areas within food processing can help these investors to reduce their exposure to some of the variability of primary production assets including commodity prices."

While the Australian dollar has hurt the food processing sector, McConnel says other factors such as our high labour and energy costs, as well as food industry regulations have negatively impacted the sector.

"The Tasmanian salmon industry is a shining example of how Australia's more stringent regulatory practices have been turned into an advantage, to achieve a reputation as a product of the highest quality - one which Asia's growing middle classes are prepared to pay a premium for," McConnel said.

"The DG25 reflects our analysis of those sectoral hotspots with the greatest potential to contribute to Australia's prosperity," said report co-author Chris Richardson from Deloitte Access Economics.

"As Asia's boom evolves and new domestic opportunities arise, our research shows that Australia's growth options remain excellent. Our future prosperity will come from a more diversified spread of sectors, enabling Australia to remain the fastest-growing developed Western nation in the world in the coming decade."



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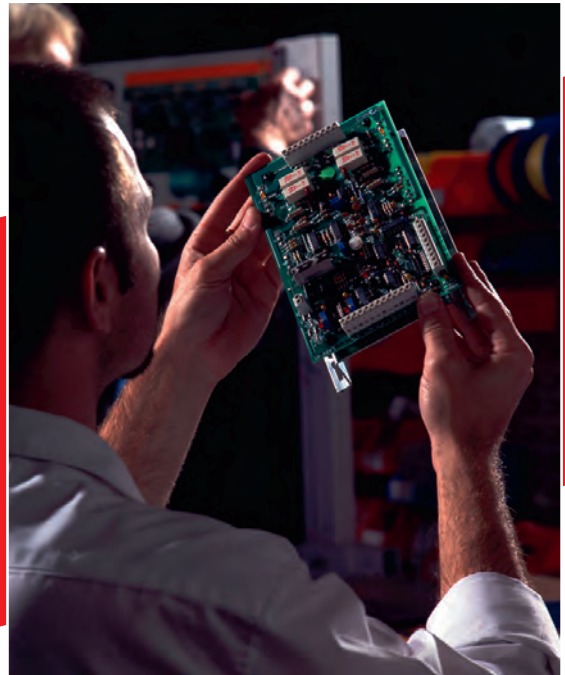
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