ERIKS

KNOW + HOW

ISSUE 35

HYGIENIC SOLUTIONS

Hygiene is a theme that echoes through every part of our lives, whether socially, at work or in our home.

With this in mind we delve into a range of topics from allergens in the workplace, the perils of sticky dough on a conveyor right through to the risks associated with refillable soap dispensers.

KNOW +HOW

Welcome

With one of the hottest summers in history seemingly over and autumn firmly on the horizon, the holidays may seem like a distant memory, which is why you'll be delighted to know that Christmas is less than 100 days away.

As we look toward to the festive season and reminisce about summer frivolities, the topic of hygiene may not be front of mind, and yet it's a theme that echoes through every part of our lives whether at home, work or in our social lives.

With this in mind, our latest edition takes the theme of hygienic solutions where we delve into the nitty gritty of all manner of topics; from allergens in the workplace and how to filter out the problem, to the risks associated with refillable soap dispensers.

We take a closer look at food safety, with a visit to a Heinz factory where motor efficiency is helping to drive down Total Cost of Ownership (TCO).

We also take a closer look at a dairy application and the crucial role of seals in the production process. Turning full circle, have you ever wondered what happens to aircraft toilet waste? Well we discover how Heathrow Airport's wastewater pumping solutions meets the challenge, thanks to technology from Xylem, featuring clog-free technology and generating some excellent energy savings.

We are pleased to introduce a new section, ERIKS in Action, this section is dedicated to the business units that make us different to your everyday distributor. In this edition we take a look at the essential ingredients in a flow control system to resolve batching, dosing, formulating and clean-in-place issues. We also focus on Power Transmission; offering one-off reliability improvements through to fully designed projects, we have the resources, flexibility and know-how.

We do hope that you enjoy the latest edition of Know + How. Do you have any top tips about hygienic solutions in your field? Have you been to an inspirational site where you have seen the latest technology in action? Share it with us via email or check out our website for more news, views and blogs from across ERIKS' range of products and services.

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KNOW +HOW

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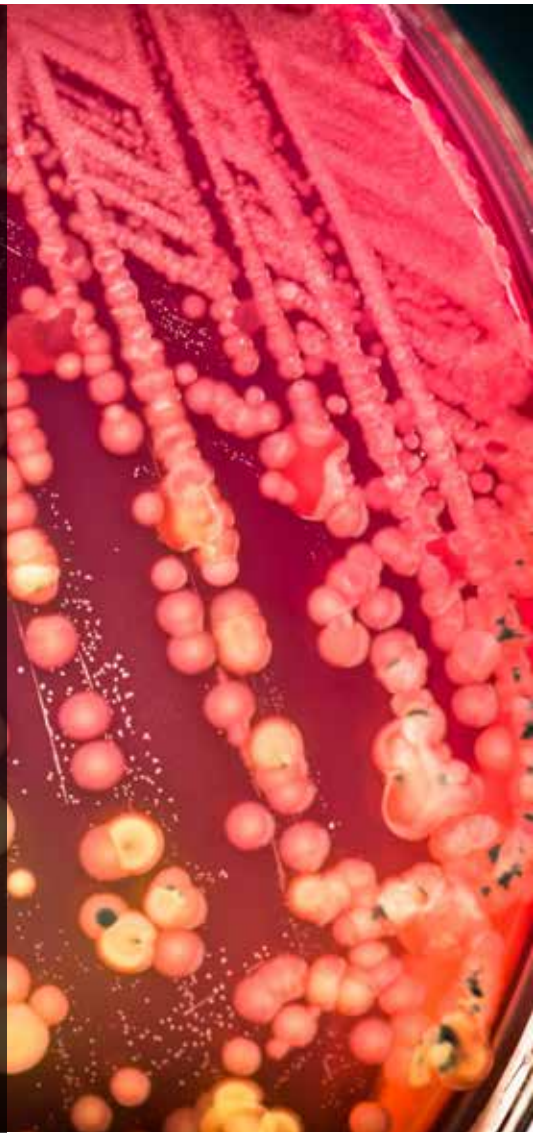
LATEST **NEWS** AND **TECHNICAL** UPDATE



STANDARD HEALTH AND SAFETY TESTS COULD BE **MISSING DEADLY BACTERIA**

Standard health and safety tests might not be reliable in protecting the public from waterborne pathogenic diseases, according to researchers from Brunel University London.

Although cold water storage tanks supply public drinking water are regularly checked for harmful pathogenic bacteria such as Legionella and E.coli, current safety regulations require a sample of water to be taken from under the ball valve at the top of the tank.

Brunel University London found that samples taken in this way are 40% less likely to raise a red flag than samples taken from the opposite end on the tank where water is likely to be warmer and therefore have more bacteria.

NEW REPORT FROM THE ENVIRONMENT AGENCY HIGHLIGHTS NEED FOR **IMPROVEMENT IN WATER SECTOR**

The Environment Agency (EA) has launched 'The Water and Sewage Companies' Environmental Performance Report', which looks at the environmental performance of the nine water and sewage companies operating mainly in England.

This covers several issues, including pollution, managing sewage, and complying with permits. It also compares each individual company's performance.

While the report highlights that the majority of water and sewage companies have a 'good' or 'leading' performance when it comes to protecting and enhancing the environment, it does note a rise in serious pollution incidents last year. The EA warns that water companies must do more to reduce their environmental impact, decrease the number of serious pollution incidents and comply with permits.

PEELABLE TECHNOLOGY TURNS EVERYDAY OBJECTS INTO IOT DEVICES

Researchers from Purdue University and the University of Virginia have developed peelable electronic films which can be cut and pasted onto everyday objects to turn them into IoT-enabled devices.

The new fabrication technique uses a single wafer to build a nearly infinite number of thin film electronic circuits that are peelable from a surface.

Electronic circuits are usually built on their own silicon wafer and are able to withstand any high temperatures or chemical etching used to remove them from the wafer. However, with the new fabrication technique, the electronic film can peel off at room temperature with the help of water and can be easily cut and pasted onto any surface to give an object electronic features.

According to Purdue University, the technology will eliminate several manufacturing steps and associated costs and, allows any object to sense its environment or be controlled through the application of a high-tech sticker. The stickers could even eventually facilitate wireless communication.

REAL-TIME LASER MONITORING PROCESS COULD SAVE STEEL MAKERS MILLIONS

A breakthrough innovation, which offers real time monitoring of the chemical composition and temperature in molten metal furnaces, could save steel makers millions of pounds a year.

Marketed by Swansea University spin-out Kubal-Wraith and developed with Tata Steel UK, the process involves projecting a laser beam into a molten furnace through a refractory gas-swept channel in the furnace wall.

Existing monitoring processes require production to be halted while disposable probes are immersed into the molten metal to measure the temperature. However, the new technology will allow continuous monitoring with no break in production.

According to World Steel Association data, over 1,000 molten metal furnaces worldwide could see significant cost savings and, while steel plants will be the first market to be targeted, the technology is applicable to other metal making sectors such as aluminium, copper and nickel.

MANUFACTURERS REVEAL CHALLENGES FACED TO PROVIDE FOOD SAFETY TRAINING

According to a survey by Campden BRI, which gathered the views of food and drink manufacturers and processors worldwide, there are three key challenges when it comes to providing food safety training to their employees.

These obstacles include scheduling time for training, assessing the effectiveness of training, and organising refresher training to update staff who have been with the company for a long time.

Amongst the results, 74% of manufacturers surveyed said they had a clear vision for improving food safety and 55% said their company was a leader in food safety. Despite this, the survey revealed that negative employee attitudes, high staff turnover and a lack of effective communications were affecting food safety culture.

PUNCHING ABOVE THEIR WEIGHT

Ansell HyFlex 11-93x Series gloves are the lightest cut-resistant and oil-repellent gloves on the market. And they outperform anything else you can get your hands on.

With a coating that's 40% more durable than comparable gloves, and a thumb crotch region that's up to 12 times more durable than unreinforced gloves, the HyFlex 11-93x Series gives advanced protection for workers in manufacturing.

They also offer an uncompromised grip, so there's less danger of mishandling or dropping sharp or slippery objects. And their light weight means they're comfortable to wear all day long if required.

Available with three different levels of dipping (palm, three-quarter and fully dipped), the gloves provide effective skin protection against – respectively – light, medium or heavy oil and grease exposure.

With an uncompromised combination of multi-risk protection and comfort, Ansell HyFlex 11-931 Series gloves allow workers to focus on the task, not the gloves.

BELTS GO **UP A NOTCH**

The Fenner® Quattro PLUS CRE and Quattro Plus TW friction belts take belt technology further than ever before.

Combining extra power and longer life, the Fenner® Quattro PLUS CRE transmits 26% more power than a traditional CRE-range belt, and lasts 15% longer. Made from synthetic rubber EPDM, it's a heavy-duty V-belt with an enhanced tooth profile, which improves its flexibility by reducing bending resistance. This makes the belt a better fit, and more efficient.

Suitable for operating environments from -40°C to +130°C, the Fenner® Quattro PLUS CRE also weighs less than other belts, and has lower inertia and reduced vibration.

The Fenner® Quattro PLUS TW goes even further in power transmission performance, offering a 30% improvement over traditional wrapped belts. It's state-of-the-art wrapped chloroprene rubber construction, with higher modulus polyester cord, has been specifically designed to reduce belt elongation and improve stability. A 2-ply symmetrical weave outer jacket not only adds to length stability but also improves abrasion resistance.

A SHINING **EXAMPLE**

LUBRICATION AUTOMATION **EXPANSION**

In a major step forward for production machinery manufacturers and operators, Schaeffler have expanded coverage of their Schaeffler DuraSense automated lubrication and lubrication condition monitoring, to include linear recirculating ball bearing and guideway assemblies.

Electronically monitoring and evaluating up to six carriages on each axis, Schaeffler DuraSense provides each individual linear axis with the precise level of lubrication it needs.

DuraSense sensors and vibration analysis enable lubrication adjustment according to load and requirement. In addition, relubrication system failures or contamination trigger the lubricating impulse – protecting the assemblies or flushing out contamination.

Protecting even heavily interconnected systems against costly downtime, DuraSense ensures maximum machine availability. It also extends machine life, by detecting material fatigue in the assemblies and increasing relubrication accordingly.

More frequent lubricating impulses serve as a starting point for predicting the remaining useful life of the monorail guidance system. A digital "LifetimeAnalyzer" will be made available to enable the calculation, and facilitate appropriate maintenance scheduling.

Is it possible to have an ATEX-certified torch with a supremely powerful beam? With the Unilite ATEX-RA2 it is.

Certified for use in hazardous and explosive environments, the Unilite ATEX-RA2 shines a 350 lumen beam with a range of 288 metres, from its CREE LED. And its safety features mean you can have all the light you want, without worry.

A safety release valve ensures no build-up of hydrogen gas from the batteries, which would otherwise be an explosion risk. The battery compartment also has a safety lock to prevent external hazardous gases coming into contact with the batteries.

Lastly, the torch body is made from ultra-strength polycarbonate, which is chemical- and corrosion-resistant.

Useful features include a rubberised head and side grips for extra protection and more reliable grip, plus a pocket clip for hands-free use, and a strong hoop where a lanyard can be attached.

And if you work where PPE such as heavy gloves are needed, the easy-push micro switch means you won't have to take them off to switch the torch on.

HYGIENE **BUILT IN**

Coatings and wash-downs can only do so much to prevent microbe growth on rubber components in your hygienic production line components. But a new family of elastomers from ERIKS means you can actually design- and build-in microbial contamination protection for O-rings, oil seals, profiles, sheets and mouldings.

Bio-Hygienic® is a pro-active antimicrobial rubber, with the antimicrobial element as an integral part of the rubber compound. So it can't wash- or wear-off, and it goes on working for as long as the rubber component is in place.

Incorporating a zirconium phosphate-based ceramic, ion-exchange resin containing silver, the rubber is safe for human and food contact, and suitable for use in pharmaceutical and food processing technology, water treatment, medical equipment, and beverage production and dispensing.

Tasteless, odourless, non-toxic, non-flammable and non-corrosive, Bio-Hygienic® compounds provide continuous protection. They not only prevent bacteria, fungi and algae from contaminating or colonising surfaces. They also save on cleaning time, downtime, lost production and maintenance costs.

ERIKS IN **ACTION**

WHEN TWO HEADS ARE BETTER THAN ONE

ERIKS

Gareth Lenton
Director Power Transmission

No-one knows as much about your industry and your application as you. Except ERIKS. You have the day-to-day, on-the-job experience gained at your own facility. We have the industry-wide experience that comes from working on countless different applications to resolve unique problems.

So working together, your engineers and our technical and application teams can resolve any drive or power transmission issue in your plant.

Working together provides a unique perspective on whatever challenge you're facing. You bring the detailed, hands-on knowledge. We bring the broader, comprehensive expertise and painstakingly acquired know-how. Which means that where some suppliers might offer just a product, we provide a solution specifically devised to meet your needs.

That's because we know that a product is only the start. It's what we do with it that makes the difference.

Your problem, our solution

No two problems and no two applications are exactly the same. Which means that no two solutions should be the same either – even if the same products are involved.

Working in partnership with you enables us to separate specific requirements from general issues, so that we can produce a truly tailored solution that ticks all the boxes for your application, and yours alone. It will not only resolve your particular problem, but will also deliver the performance you need, and fit the budget you have available.

And if there are particular quirks of your production or oddities of your operation that only you could know about, our close collaboration will ensure that they're addressed too. We won't try to force your application into a one-size-fits-all straitjacket. We'll create something that's truly bespoke.

Cutting-edge products

Although products are only the start, it helps if there's a comprehensive range available from stock.

ERIKS Drives and Power Transmission holds £20m of product ready for immediate dispatch, including belt drives, chain drives and geared drives, belts and chain, shaft fixings, couplings, motors, inverters, speed reducers and automation components.

And they're not just a random selection. They're carefully chosen from reputable, high-quality manufacturers, and include the latest technologies. So whether you want the technology you've always relied on, or cutting-edge innovation, it's your choice, from our stock.

You can also always expect to find the products you need, when you need them.

ERIKS has been operating in the field of drives and power transmissions for many years, and has established close relationships with the leading manufacturers. That means we can rely on their continuity of supply. We also have our own highly efficient and flexible logistics operation, to get the right products to the right place at the right time. If the scale of your requirements demands it, we'll even establish a specific stockholding just for you, so you can be sure your supply will never be interrupted.

We're also proactive, not reactive.

Using demand forecast models and predictive purchasing algorithms, we can ensure we have not only the products you want now, but the ones you'll want soon.

Putting it all together

Drive and power transmission requirements come in all shapes, sizes and guises, and demand solutions that are just as varied and adaptable.

From one-off reliability improvements to fully design projects ERIKS has the resources, flexibility and know-how to deliver a complete answer to your needs, including:

- Customisation
- Kitting
- Sub-assembly
- Design and modelling
- Theoretical proving
- Test rigs
- Application, compliance and Best Practice advice

At ERIKS Technology Centres and Regional Hubs across the country, your customised drives and power transmission solutions can be designed, engineered and manufactured. Validation testing is also available on-site, and manufacturing can be carried out to meet ATEX, Food and Hygiene or industry-specific regulations.

Solutions can also be manufactured with integrated safety systems, to suit the requirements of your operating environment or application.

The everlasting solution

ERIKS engineering ensures your drives and power transmissions work better, for longer. Even so, they won't last for ever.

But ERIKS asset management can help to maintain their optimum performance throughout their service life. An audit will help you identify precisely which assets are production-critical, right down to the last nut, bolt, drive chain and coupling. Then we can design a monitoring system for those assets, which will spot issues before they become a problem.

That means you'll be able to address them in good time, before an issue becomes a crisis or a minor problem becomes a major expense, and with the aim of minimising unplanned downtime and maximising uptime.

We can also offer scheduled inspection and maintenance services for unmonitored assets, to help them retain peak performance for longer.

And because our service goes beyond the product, you can chose from a range of other ERIKS support services, which can take you from installation and commissioning, through reliability improvements, repairs and upgrades, to decommissioning and replacement.

Whatever your drive or power transmission requirements, working together with ERIKS will help you to find a solution that provides the optimum combination of efficiency, productivity and cost.

All it takes is the optimum combination of ERIKS, and you.

GETTING THE **RIGHT MIX**

Accuracy, speed, safety and automation are essential ingredients in a flow control system. That's the recipe ERIKS flow control engineers work with, to resolve batching, dosing, formulating and Clean-in-Place issues, for customers in the food and beverage, chemicals and pharmaceuticals industries to name but a few.

Whatever the problem, when your engineers can't release the time or don't have all specialist skills, ERIKS flow control experts have the knowledge to develop a comprehensive solution. This means not only an understanding of the system requirements and the components to meet them, but also a wider knowledge of the demands of the FDA and other regulatory bodies.

We also understand the need for cost-effectiveness. So we design systems built around cost-saving modular components where possible. But if that's not viable, we co-ordinate pump, valve, actuator and control system specialists at our Flow Control Technology Centre [see overleaf] to create a tailored system from the ground up.

ERIKS

Peter Brown
Liquid Process
Development Manager

Cleaning up Clean-In-Place

Clean-In-Place (CIP) is a crucial element of many production processes, when production switches from one batch to another. If it's slow or inefficient, it has the potential to cause excessive production downtime.

A manual CIP process is often time-consuming, leading to slower production line changeovers. Depending on the chemicals involved, manual handling can also be a health and safety risk. And manual processes are less accurate, leading to wastage and unnecessary cost.

This was the problem for an ERIKS customer using a manual CIP process for industrial ovens.

> "A SOLUTION THAT'S PRACTICAL, COMPLIANT AND EFFECTIVE..."

The process involved highly caustic Sodium Hydroxide, supplied in 42kg containers. Manual handling posed a risk not only of injury from heavy lifting, but also of chemical burns from splashes or spillages.

ERIKS' solution was an automated in-line CIP system, which delivers the chemical directly into the ovens, with no manual intervention required.

Firstly, this removes the risk of heavy-lifting injuries. Secondly, it eliminates the possibility of chemical burns. And thirdly, rather than the 30 litre chemical container size that manual lifting limited them to, the customer can now purchase 1000 litre containers, at a significantly lower price per litre.

Better batches

A manual process causing problems for another customer involved dosing batches of cooking oil with an anti-foaming agent.

The required ratio of agent to oil was just 9.7g in 3000 litres, with a 1g tolerance.

Manual dosing made it almost impossible to achieve that degree of accuracy, and also meant the two liquids failed to mix as thoroughly as they should – leading to sub-standard product quality.

> "NO MANUAL INTERVENTION REQUIRED..."

ERIKS Flow Control engineers devised an automated system to directly inject the anti-foaming agent into the oil feed pipe as each batching tank is filling. The liquid is drawn from a 30kg drum, positioned on a highly accurate weighing platform. An equally accurate dosing pump draws the agent from the drum, while the platform controller monitors the drop in weight and stops the pump once the correct amount has been withdrawn.

A dosing data log is maintained in the HMI, and the control panel monitors the entire operation – raising an alarm and stopping the operation if an over- or under-dose occurs. After 12 months of operation, the system has not once strayed outside the dosing tolerance.

With less wastage of foaming agent, no labour cost, and a higher product quality, the new system has saved the customer £37,000 over the same period.

Undiluted expertise

ERIKS' in-line dilution system is ideal wherever two or more liquids need to be measured proportionally and mixed in a continuous one-pass operation.

The required formulation is accurately metered into a common unit, by pumps with a stable laminar flow characteristic. Electric control process automation communicates with flow meters, actuated valves and pumps, to form a fully interactive process.

The whole component part assembly is mounted on a compact stainless steel framework skid, together with the control panel and all pipework and wiring. Inlet and outlet pipework connections are fixed in place, ready for quick and easy connection to the customer's plant.

A selection of bolt-on additions is also available: from a PLC interface to heat exchangers, inline mixers and Board of Trade filling flow meters. All wetted parts can be manufactured in a choice of stainless steel, polypropylene or polyethylene.

But it's not only materials and components

> "SAVED THE CUSTOMER £37,000..."

which make a successful flow control solution. It's also the expertise that goes into it. Which is something best sourced from ERIKS Flow Control.

ERIKS **FLOW CONTROL** TECHNOLOGY CENTRE

Taking control of Flow Control

Developing specialist flow control and dosing systems demands specialist knowledge, comprehensive understanding of a wide range of components, and access to those components at competitive prices. To help you take control of your flow, ERIKS' new 3,000sq. ft Automation Cell housed in the Flow Control Technology Centre brings together know-how, expertise and components all under one roof.

> "KNOW-HOW, EXPERTISE AND COMPONENTS ALL UNDER ONE ROOF..."

The new Cell being built in the Technology Centre at Leicester is staffed by engineers from a wide range of disciplines and with a huge variety of skills, collaborating on complete solutions for customers' flow control issues.

Smaller manufacturers can't match our know-how. Larger manufacturers can't, or won't, match our pricing.

Engineering, not selling

If you have an issue with accurate dosing or dilution of a recipe or formula, you don't need a salesperson. You need an engineer.

The experienced engineers at ERIKS Flow Control Technology Centre talk your engineers' language. Specialists in dosing pumps, valves, actuators and control systems, they also understand the special challenges of clean environments in the food and beverage and pharmaceutical industries, and hazardous zones in the chemicals sector.

The 3,000sq. ft. facility and team encompasses every stage from design to engineering and production. Bare shaft pumps can be assembled, valves and actuators tested and certified, and control systems created. Finally, the complete solution is bought together and skid-mounted, ready to integrate with whatever direct control system you operate.

Premium partners

ERIKS Flow Control has close working relationships with manufacturers of quality components covering every element of a flow control system:

- Grundfos pumps and dosing systems
- WEG electric motors
- Econ valves and proportional valves
- Fenner control systems

Our buying power also enables us to source components from any other manufacturer, at competitive prices, at the customer's request.

So ultimately, you'll receive the turnkey skid-mounted system that gives you full control of your flow control.

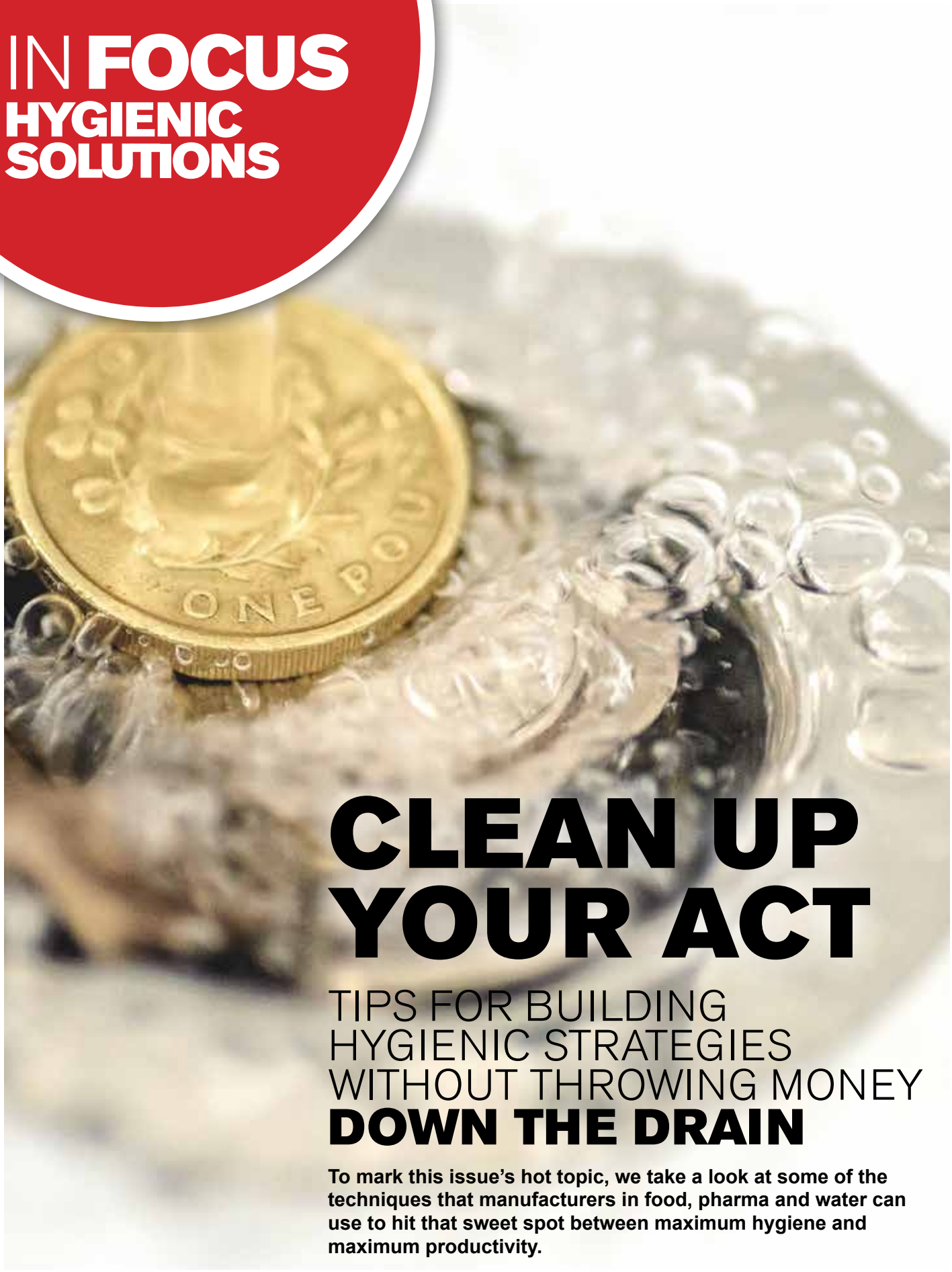
> "COMPLETE SOLUTIONS FOR CUSTOMERS' FLOW CONTROL ISSUES..."

COMPLETE **SOLUTION**, COMPLETE **SERVICE**, COMPLETE **RANGE**

The complete range of flow control solutions available at the ERIKS Flow Control Technology Centre comprises:

- In-line blending, recipe/ formulating systems
- Batch blending, recipe/ formulating systems
- Automated dosing systems
- In-line dilution acids/alkalis
- Batching systems
- Filtration systems
- Clean-In-Place (CIP) systems
- Filling systems (fully automatic and semi-automatic gravimetric, for 20-1,000L IBC containers)

IN FOCUS
HYGIENIC SOLUTIONS



CLEAN UP YOUR ACT

TIPS FOR BUILDING HYGIENIC STRATEGIES WITHOUT THROWING MONEY DOWN THE DRAIN

To mark this issue's hot topic, we take a look at some of the techniques that manufacturers in food, pharma and water can use to hit that sweet spot between maximum hygiene and maximum productivity.

FOOD FOR THOUGHT

The sector: FOOD & BEVERAGE

According to the Government, the UK's functional food market was worth around £1.2 billion in 2014, having grown at an annual rate of 13 per cent since 2000[1].

8,500 products are added to the supermarket shelves each year, with a consumer spend of around £230 billion in the UK alone. This leads to increasing pressure for manufacturers to innovate, while also meeting a range of expectations levied by consumers, partners and legislators.

The stakes have, arguably, never been higher and there is increasing pressure on businesses to, not only comply, but exceed expectations. How can this be done without sacrificing profitability or productivity?

[1] https://invest.great.gov.uk/industries/food-and-drink/

A SOLUTION:

There are many ways that food and beverage manufacturers can hit hygienic targets without stifling production. An arguably quick win, however, is the replacement of motors and gears with hygienically-designed models. "Gears and motors can play a big part in bacterial contamination, 90 per cent of which is caused by poor hygienic design," explains Gareth Lenton, Director of our Power Transmission Technology Centre.

"There are three main problem areas in this regard: condensation, corrosion and food accumulation. All of these place enormous cost pressures on food manufacturers."

Hygienically-designed gears and motors solve these problems in a trice. Models such as the Fenner Hypoid or Fenner KH have smooth surfaces with no food traps, special anti-condensation breather plugs and are constructed from high grade stainless steel. They also facilitate improved wash-down cycles through their innovative hygienic design.

"Hygienic designs like these reduce cleaning costs, speed up processes and increase the potential lifetime of the equipment," Gareth says. "In fact, we estimate that food manufacturers could save up to 60 per cent on cleaning costs due to shorter cleaning cycles, and reduced disassembling and re-assembling."

Take a closer look: ERIKS stocks a number of products from the Fenner range, including gearboxes, geared motors and electrical controls. Explore the options via our online shop: shop.eriks.co.uk.

THE RIGHT MEDICINE

The sector: PHARMA

Profiting from the expertise of many internationally-renowned universities and research laboratories, pharmaceuticals manufacturing accounts for nearly ten per cent of all manufacturing in the UK, with exports worth up to £30 billion a year [2].

The industry is changing, however. It is getting harder for new products to break through beyond initial research and development. Of the ones that do, relatively few offer any standout benefits, beyond those already available to consumers.

On top of all this lies stringent regulation with regards to the safe production of pharmaceuticals. The fallout from non-compliance can also be catastrophic, resulting in fines, loss of lives and criminal proceedings. What pharmaceutical manufacturers need, therefore, is control.

A SOLUTION:

According to a document from the European Commission regarding Good Manufacturing Practice (GMP) in pharmaceuticals: safe, hygienic manufacture ultimately stems from good asset management and documentation.

"Good documentation constitutes an essential part of the quality assurance system and is key to operating in compliance with GMP requirements," the report says. "The main objective of the system of documentation utilized must be to establish, control, monitor and record all activities which directly or indirectly impact on all aspects of the quality of medicinal products [3]."

Good asset management is arguably vital to the safe production of pharmaceuticals, because it needs to separate the different products depending on their stage of development. Those that are approved, for example, will need to be differentiated easily from those that have been rejected, or that have expired.

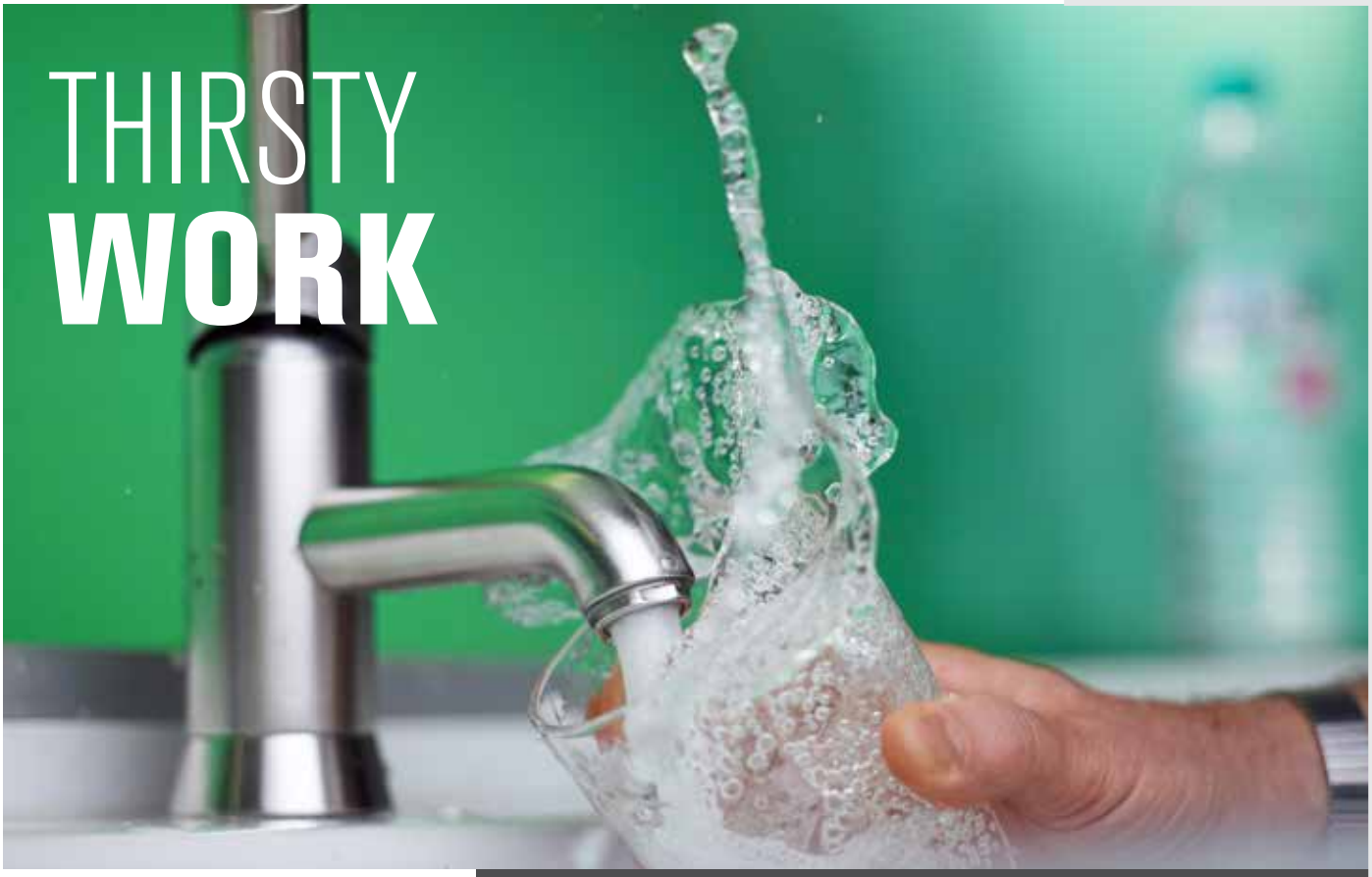
"Good asset management means knowing what's needed, when and where it's needed, and managing this without spending too much," says Thomas Boswell, Reliability Engineering Manager. "It allows a business to control costs, expand the working lifetime of machinery, reduce time lost to breakdowns and repairs, increase output, and maintain a healthy supply of spares and consumables."

For pharmaceutical manufacturers, it also provides much-needed visibility and oversight of a supply chain, as well as useful audit trails to prove compliance. That's definitely what the doctor ordered.

Take a closer look: ERIKS provides a scalable asset management service that can target the most critical areas of production. For pharmaceuticals, this could include: asset registration and mapping; asset tagging and tracking; testing and certification; and documentation. Visit our services page on Asset Management to find out more.

eriks.co.uk/assetmanagement

THIRSTY WORK



The sector: WATER AND WASTEWATER

Since the privatisation of the water and sewerage industry in 1989, the water sector has had to work hard to prove that it can provide safe, reliable water supplies at a reasonable cost to the consumer.

This hasn't come without its challenges. A WWF analysis report recently highlighted the fact that 40 per cent of rivers in England and Wales are polluted with sewage, most of which comes from 18,000 sewage overflow sites operated by water companies, as well as treatment plant breakdowns[4] .

Industry regulator Ofwat is now under increasing pressure to hold water companies to account for the quality of their services, and this is simultaneously leading to a rush in embracing new technologies that will make water and wastewater systems safer, cleaner and more resilient.

4 Flushed Away: How Sewage is Still Polluting the Rivers of England and Wales, (WWF: 2017)

5 What is a WRAS approval? https://www.wras.co.uk/approvals/what_is_a_wras_approval/

A SOLUTION:

It goes without saying that the repair or replacement of mechanical systems for drinking water must adhere to strict hygienic requirements. Pumps, for example, must meet Regulation 31 of the Water Regulations Advisory Scheme (WRAS), which lists the substances and materials suitable for the preparation and distribution of drinking water.

"Any water fitting, which when installed, will carry or receive water from the public mains water supply in the UK, must comply with the Water Supply (Water Fittings) Regulations or Scottish Byelaws," according to the WRAS website. "These require that a water fitting should not cause waste, misuse, undue consumption or contamination of the water supply and must be 'of an appropriate quality or standard'."[5]

Replacing legacy pumps with new versions can be a complicated process, but one that you cannot afford to get wrong.

"You need to make sure that you work with technical experts to ensure that you are specifying the right product," says Technical Director of Flow Control, Andy Cruse. "Sourcing one isn't the end of the story either. You also need to have the technical knowledge to fit the pump correctly – which may require additional engineering if you come up against space restrictions.

"Furthermore, your team need to be able to plan any engineering work meticulously so that no external material will enter any fresh water systems. This will, at the bare minimum, involve full disinfection of the new pumps, and any tools being used."

Take a closer look: ERIKS Pump Technical Experts are able to work with water and wastewater companies to find the best possible solution. Backed by a range of industry partners, we're able to provide services such as: application engineering, system design and build, repairs and upgrades, and reverse engineering to ensure that your water systems remain efficient, resilient and, most importantly, safe and hygienic. Visit our pages on Flow Control and Pumps to find out more.

eriks.co.uk/flowcontrol

GETTING INTO THE ZONE

FOOD ZONES AND HYGIENE STRATEGIES FOR MACHINERY DESIGN

FESTO
Andrew MacPherson
Food and Beverage Manager

After hospitals and operating theatres, food and drink manufacturing are probably the most critical areas for maintaining hygiene.

Products and systems must be completely safe to protect consumers from potential food contamination. So how can machine builders ensure they're designing equipment fit for these applications?

It's not just a matter of mechanics. It's also essential to understand potential contamination sources, the zones within food manufacturing plants, installation, and the operating environment.

Only by fully understanding requirements for each zone can machine builders avoid over-designing parts, or shortening their lifespan, or compromising the food-safe element of a process by introducing non-compliant products.

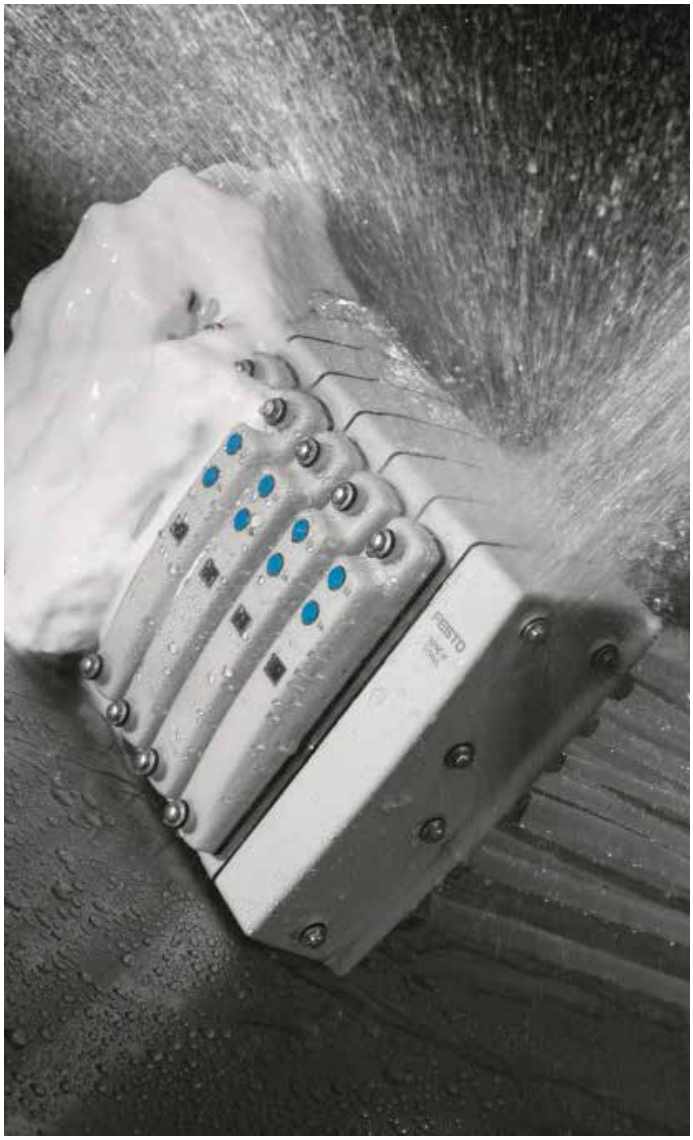
> "EACH ZONE HAS DIFFERENT IMPLICATIONS FOR MACHINE DESIGN, CONSTRUCTION AND MAINTENANCE...."

Where does contamination come from?

In food and drink manufacturing there are three potential sources of contamination:

1. **BIOLOGICAL**
   Pathogenic germs, rotting / fouling causing microorganisms and toxins
2. **CHEMICAL**
   Cleaning agents, disinfectants, lubricants
3. **PHYSICAL**
   Dust, abrasion, rust particles

All machines need to be built to protect food from all these causes, and there are numerous food and hygiene regulations, directives and standards which machine builders need to be aware of.



For example, EC Machinery Directive 2006/42/EC applies wherever food comes into direct contact with machine parts and components. There are also standards and directives for design (EN 1672-2/ EHEDG Doc 8 and Doc 13) and materials (FDA CFR Title 21, ISO 21469, 1935/2004/EC) which provide additional support for food safety.

Which zone is which?

The European Standard EN 1672-2, Food processing machinery - Basic concepts, defines three areas in food production: the Food, Splash and Non-Food zones. Each has different implications for machine design, construction and maintenance.

Food Zone

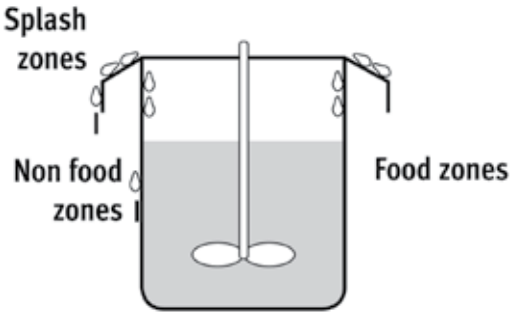
Encompassing all system parts and components mounted directly in the food flow, which come into contact with foodstuffs. Includes all areas where food could be contaminated and return to the product flow. Parts and components must be easy to clean and disinfect, corrosion-resistant, non-toxic and non-absorbent. Smooth, continuous or sealed surfaces reduce the possibility of food being trapped and leaving difficult to remove residue. Only food-compatible lubricants may be used in this zone.

Splash Zone

Machine parts and components come into direct contact with foodstuffs, but the food is not returned to the product flow. Parts used must meet Food Zone criteria.

Non-Food Zone

Machine components do not come into contact with the product. Parts should be manufactured from corrosion-resistant materials, and be easy to clean and disinfect, as bacteria could develop over time.



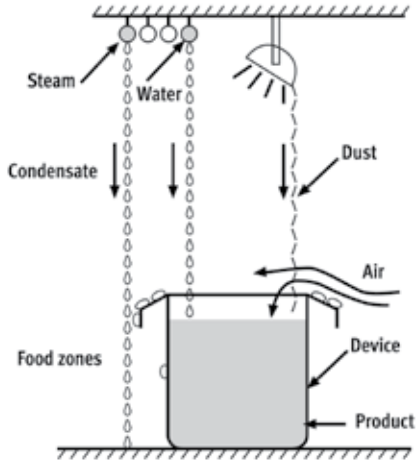
Going beyond the Zones

The European standards represent a minimum requirement. A consortium of equipment manufacturers, food industries and research institutes advises manufacturers to go further.

The European Hygienic Engineering & Design Group (EHEDG) identifies areas with potential for contamination of food production, and publishes hygienic design guides for machine builders.

> "THREE POTENTIAL SOURCES OF CONTAMINATION...."

It's also important to consider the whole plant environment, together with Clean in Place (CIP) routines. For example, to ensure equipment remains hygienic after CIP, materials for machine parts must be non-reactive with any cleaning agents or anti-microbial chemicals (disinfectants) employed. They should also be corrosion-resistant and mechanically stable, to prevent surfaces from being negatively affected.



However, even the best-designed product on the market will present a contamination risk unless correctly installed. Correct installation is particularly important for:

- Cable trays
  These can collect dirt or dust debris
- Motors Floor-mounted
  Next to machines they may have difficult-to-clean areas underneath
- Machine feet, mounting holes etc.
  Can allow material build up
- Tubes and fittings
  Should be anti-hydrolysis or chemical-resistant and an appropriate material for the zone

It's equally important to check for compressed air contact with food products or packaging during the production process, and to consider "worst-case" scenarios. For example, a burst flour bag on a packing line could allow flour to dry out the oil, leading to drying of bearings and seals and, ultimately, costly downtime.

Working with a partner like Festo – with a thorough understanding of the unique demands of food manufacturing processes, extensive applications expertise and technical know-how – enables machine builders to build efficient, cost-effective, fit-for-purpose equipment: ensuring not only productivity but also food safety and consumer protection.

Setting the standard

Festo's MPA-C valve terminal sets an industry standard, with the highest corrosion resistance class in its range. With its augmented 'Clean Design' portfolio, the valve incorporates many innovative functions, and the modular sub-base design offers maximum flexibility – easily expanding to a maximum 32 valves or solenoid coils. A redundant seal system allows trouble-free, intensive cleaning with high pressure jets or foam, enabling installation in locations with harsh cleaning conditions, such as Food and Splash Zones.

FDA approved

Festo's stainless steel cylinders with NSF-H1 food-grade grease and special seals, are chemical-resistant tubes featuring FDA-approved polymer or stainless steel fittings. The easy-clean design is corrosion-resistant in harsh ambient conditions, and the materials are particularly resistant to uniform surface corrosion, as well as providing increased protection against pitting and crevice corrosion.

Easy air cushioning

DSBF Clean Design anodised aluminium cylinders with self-adjusting cushions are ideal for the Splash Zone. They offer the benefits of adjustable air cushioning, but with no associated set-up difficulties or cost premium. The NSF-H1 lubricant and special wiper seal are suitable for food contact, and long service life is assured. Cleaning processes can degrease piston rods, but Festo's special piston rod seal is designed for unlubricated operation for a longer service life.

BEATING BACTERIA THROUGH ENGINEERING

HOW TO DESIGN-IN CLEANLINESS IN FOOD PRODUCTION EQUIPMENT

ERIKS

Nigel Jones
Sales Manager
Power Transmission

Food producers need no guidance from engineers on maintaining cleanliness and hygiene in their production processes.

Correct hygienic procedures, wash-down regimes and so on are second nature to reputable producers. But if the equipment being used is unhygienic in its design, then what chance do they have?

It's a small irony that procedures to achieve a clean environment may create the very problems they're intended to eliminate. Frequent wash-downs of equipment and machinery largely remove food residues, and using chemicals helps to kill bacteria. However, the water also facilitates the kind of wet ambient environment where bacteria thrive if they can only get a toehold.

Unfortunately, that toehold is often found in gears and motors. In fact, 90% of bacterial contamination in the sector is caused by poor hygienic design, and gears and motors deserve the largest share of the blame.

The 3 deadly design sins

As a leading gears and motors manufacturer, the Fenner brand has extensive experience of the ways in which poor design can offer a welcome mat to bacteria.

1. Allowing condensation build-up

Bacteria thrive in warm and moist conditions. Most motors lack condensation control, so when they are warmer than the air around them, condensation can quickly build up – making bacteria feel perfectly at home.

In addition, where there's moisture there's corrosion, which can shorten a motor's operating life, increase downtime and maintenance costs, and lead to a higher total cost of ownership.

2. Allowing gear corrosion

Corrosion can be a particular problem in gear housings and bearings, as a result of condensation, or water ingress during wash-downs.

In a worst-case scenario, corrosion can break off and make its way into the food production process and on into the product itself. Compared with that, the fact it can also shorten the equipment's working life looks like a minor inconvenience.

3. Allowing food accumulation

Even a thorough wash-down regime won't necessarily remove food debris from hard-to-reach areas such as cooling ribs, hollows and sharp edges. Accumulated debris is a bacterial breeding ground, and in time the bacteria could enter the food product – with all the risks to customers and brand reputation that implies.

As if all that wasn't enough to worry about, there are external pressures too.

Paying the price

Producers are being ever more tightly squeezed on price and margin by retailers. Then there are regulations to adhere to and certifications to acquire, such as those from the British Retail Consortium and International Food Standards. They mean extra work, additional admin., and yet more cost.

Meanwhile retailers are under pressure too: to ensure that the food offered to their customers is of the highest standard. All it takes is one slip-up to attract enormous media attention and serious reputational damage.

Many food producers are turning to Hazard Analysis and Critical Control Points (HAACP) as a way of reducing the risks. This helps with risk identification, and reduction or elimination through changes to equipment and procedures.

This is also where engineers and engineering can help

For example, ERIKS has established a three-step action plan for food producers, to ensure that the gears and motors they buy are not only hygienic and compliant, but also avoid all three deadly sins of engineering design.

> "90% OF BACTERIAL CONTAMINATION IS CAUSED BY POOR HYGIENIC DESIGN...."

Cleaning up on TCO

More hygienic systems inevitably reduce cleaning costs.

In fact, ERIKS estimates that food processors could save up to 60% thanks to shorter cleaning cycles and reduced disassembly and reassembly. Stainless steel geared motors are quicker to clean because, for example, they have no need for covers, which take extra time to clean. Stainless steel also needs smaller quantities of water and chemicals for an equally effective clean – making it a more sustainable choice.

More savings may be realised through longer equipment operating life.

Minimising condensation leads to less corrosion, less monitoring and longer Mean Time Between Failure. One food producer customer of ERIKS replaced a motor with the new Fenner Hygienic Geared Motor, and achieved an eight-fold improvement in operating life. Maintenance teams are also freed to concentrate on projects which benefit the entire production process, rather than firefighting gear and motor failure.

When you start with equipment which is designed and engineered to be hygienic – like Fenner Hygienic Motors and Hygienic Geared Drives – cleanliness is easier to achieve, costs can be reduced, and the risk of non-compliance is eliminated. A clean sweep, in fact.

> "SPECIFYING MORE HYGIENIC EQUIPMENT MAY SAVE YOU MONEY..."

PREVENT CONDENSATION BUILD-UP

1

Motors equipped with anti-condensation de-breathing equipment prevent condensation build-up, by balancing the pressure difference between warm air inside and cold air outside the motor.

For food production environments with wash-down regimes, ERIKS also recommends motors with an ingress protection rating of IP66 – IP69. This will protect against powerful jets of water and chemical cleaning products.

DESIGN FOR EASIER CLEANING

2

Gears and motors with smooth surfaces (including etching to replace tag plates) will offer fewer places for debris and bacteria to hide.

Easy-clean hollow shaft covers and torque arms, and motors with a rounded shape (such as the brand new Fenner Hypoid and Fenner KH ranges) also enable more effective wash-downs.

SPECIFY STAINLESS STEEL

3

At least one multi-national grocery retailer already insists its suppliers change their geared units to stainless steel designs, to eliminate corrosion and associated risks.

If this all sounds like a great deal of expense to mitigate a very small risk, it's worth remembering the enormous damage a food hygiene failure can cause: financially, reputationally and even to public health. And on the positive side, specifying more hygienic equipment may actually save you money, by reducing the equipment's total cost of operation (TCO).

ELIMINATE RELUBRICATION? "Y" NOT?

Dave Oliver
Channel and Platform Manager

It's one of the ironies of maintaining hygienic conditions in food and beverage manufacturing, that the wash-downs which keep your assets clean also create the wet and humid environment that bacteria love. Not only that, but they can also affect your asset reliability – leading to downtime and costly maintenance – and cause environmental hazards.

Repeated wash-downs may remove dirt and unwanted grease, but they can also affect the reliability of the sealing system. When that happens, cleaning media can enter the bearing cavity to cause corrosion and reduce bearing life.

> "MANUAL LUBRICATION IS A RISKY BUSINESS..."

The traditional way to counteract the problem is to have your maintenance team relubricate the bearings after each wash-down. That could mean: after each shift. It's a time-consuming and expensive process – both in terms of lubricant and labour costs. And when standard bearing units are relubricated, excess grease is often discharged past the bearing seals. Once it escapes, there's a risk of it ending up in the food stream, causing slippery floors and a safety hazard during the next wash-down, and contaminating the plant's wastewater.

Manual lubrication is also a risky business. If a ladder is required for access, it's a safety risk for engineers, and if grease has already leaked onto the factory floor the risk is multiplied.

There will also always be some bearings that are difficult to locate and access. If they get overlooked during regreasing, it can potentially lead to breakdowns and costly unplanned downtime.

What's needed is a bearing which can withstand the conditions in harsh wash-down environments, and eliminate the problems and risks associated with standard bearings. The SKF Food Line Y-bearing units are problem-free, risk-free and – best of all – relubrication- free.

As David Oliver, Food and Beverage Segment Manager at SKF, explains: "Companies have an opportunity to solve ongoing issues by applying bearing technology that delivers significant cost savings and environmental improvements, without waiting years to achieve these results."

Performance under pressure

SKF Food Line Y-bearing units are industry compliant, and designed to withstand high-pressure washing environments.

Pre-lubricated with NSF H1 grease, they feature a relubrication-free, stainless steel bearing insert, fitted with a highly efficient, FDA-approved, multiple-lip seal, and a rotating flinger on both sides. The design keeps lubricant in and harsh wash-down solutions out.

The bearing's high-strength, composite housing is resistant to hot and cold water, disinfectants, wash-down chemicals, citric acids and cooking fats. So it's ideal for use in all food processing operations. In addition, the unit's solid base design and smooth surface finish makes it easier to visually inspect, as well as improving bacteria elimination and ensuring cleanliness.

> "PROBLEM-FREE, RISK-FREE AND – BEST OF ALL – RELUBRICATION FREE..."

Milking the benefits

When a major provider of dairy products adopted this relubrication-free technology in their processing operations, they quickly realised a return on their investment.

Beforehand, they used standard bearings that needed regreasing every week. That meant lubricating 350 mixed-size bearings at a cost of £50,000 annually. The dairy also had to perform frequent extra cleaning, to keep the bearings free from dripping lubricant. That meant using more than 380 cubic litres of hot water a year. Add the energy for heating the water, and the cleaning agents required, and the costs soon mounted up.

Replacing the standard bearings with SKF Food Line Y-bearing units gave the dairy plant significant benefits.

> "KEEPS LUBRICANT IN AND HARSH WASH-DOWN SOLUTIONS OUT..."

Weekly regreasing and extra cleaning of the bearings is no longer required. The SKF relubrication-free technology prevents the original lubricant from being washed out. The cost of grease and the labour involved in maintenance are also both eliminated, and water usage reduced.

The combination of all these savings meant the dairy recouped the cost of the new SKF Food Line Y-bearings in just six months. So if you can maintain food hygiene and save on costs, "Y" wouldn't you?

REAL-WORLD RESULTS

- £3,200 annual saving on grease
- 113kg reduced grease consumption – and all grease eliminated from plant floor and wastewater stream
- 380 cubic litres reduced hot water use
- £50,000 annual saving (based on labour, grease and purchased water costs) – realising a return on investment in just 6 months


TOO WEAK
TWO WEEK
TWO LEAK SEAL

ERIKS

Jon Joynes
Application Engineer
Sealing and Polymer

When a seal has two leaks in as many weeks, there's clearly a problem. And when the seal leaks acid in a food production environment, damages other equipment, and causes lengthy downtime, the problem's clearly serious. But it's not one that ERIKS can't solve.

The leaking seal was situated in a dosing pump unit at a dairy manufacturer's plant. Residue left in the unit from the customer's cheese-making process is fat-heavy, and there is a frequent Clean In Place procedure carried out, using an acid and water mix.

That's a highly effective mixture for cleaning, but not one you want leaking across your factory floor.

Not surprisingly, the first leak of the acid cleaning fluid caused considerable damage to a range of other equipment in the area, including flowmeters, valves, airlines and gauges. It also created a health and safety risk which had to be contained before the customer's engineers could even begin remedial work.

> "ERIKS' ENGINEERS QUICKLY ESTABLISHED THE REASON FOR THE LEAKS..."

Once the area was cleaned-up and made safe for the engineers, they not only had to remove and replace the leaking seal, but also remove all the other damaged equipment and replace it with new. It was a time-consuming and costly exercise, resulting in several hours' downtime and lost production, plus the additional cost of the new equipment.

Unfortunately, within just two weeks of a new seal being installed, and with some of the new equipment already in place and operational, the situation repeated itself. More health and safety risk, more equipment damage, more downtime and more lost production.

This time, the engineers realised they needed more seals know-how than they had in-house. So naturally, they contacted their local ERIKS Service Centre.

A mixture mix-up

ERIKS' engineers quickly established the reason for the leaks.

The dosing pump had been fitted from new with an EPDM seal, which is the "one-type-fits-all" sealing choice used by most OEMs for the majority of applications. Unfortunately, in this case, it wasn't tough enough to stand up to the high concentration of acid in the CIP mixture, which is necessary to deal with the fat-heavy residue.

> "THE RAPID PROTOTYPING CELL UNDERTOOK DESIGN AND MANUFACTURE..."

The result was faster degradation of the seal material, leading to a far shorter service life and more frequent costly leaks.

ERIKS' engineers' experience with seals and CIP chemicals indicated that the answer would be a seal made from an alternative, high-performance compound. With dimensions taken from the mating hardware on the customer's dosing pump, and from the existing EPDM seal, the Rapid Prototyping Cell at the ERIKS Seals Technology Centre undertook design and manufacture of a prototype.

Toughing it out

ERIKS application and materials know-how meant that selecting the most effective material for the new seal was relatively simple.

The engineers' choice of compound for the prototype was Perfluoroelastomer FFKM-75—162. This is a highly fluorinated, chemically-resistant elastomer, providing far higher-performance than the EPDM used in the original seal.

Suitable for use in temperatures of up to 300°C, it has also been fully immersion-tested in 65% nitric acid at 85°C for an extended period. The test results show a swell of less than 10%, with no chemical attack of the seal or degradation of the material.

Once the new seal had been designed by ERIKS and approved by the customer, ERIKS then had to manufacture the compression moulding tools for production of the seals. From initial design of the seal, to testing, tooling up and final manufacture, every stage of the process was carried out in-house, ensuring the highest quality as well as the fastest turnaround.

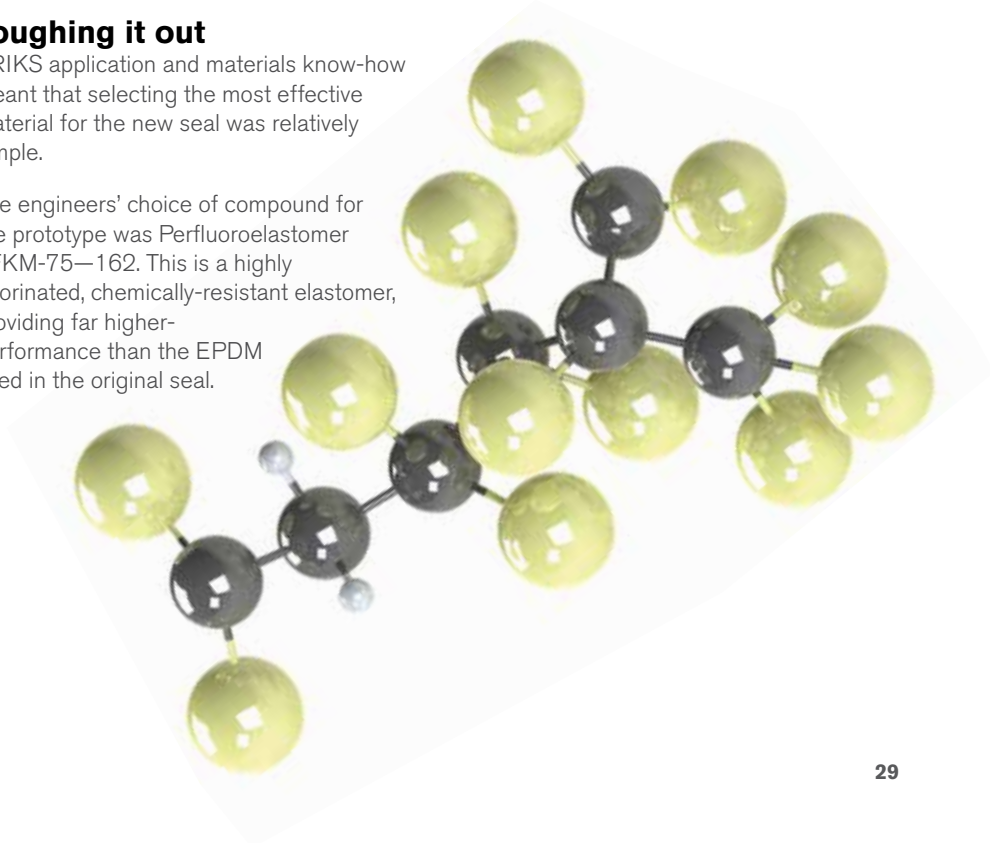
Cheesy grins

The bespoke, ERIKS-designed and ERIKS-manufactured seal has now been in place in a number of dosing pumps at the customers' site for around twelve months.

Inspections by the customer at three months and six months showed no signs at all of material degradation, and around a year on from installation there have been no more leaks from the cheese-making equipment.

> "EVERY STAGE OF THE PROCESS WAS CARRIED OUT IN-HOUSE..."

Cue big cheesy grins from a satisfied customer and the experienced ERIKS engineers who sealed the deal.



A GOLD STAR FOR SILVER-LUBE BEARINGS

MOTION & CONTROL NSK

Robert Bryan
Aftermarket Key Account Manager

Hygiene is hell for bearings. In food and beverage, pharmaceutical or chemical industry plants, the frequent wash-downs required – often with aggressive chemicals – can be the last straw in operating environments that are already extreme.

As part of the NSK range of products, the RHP brand Silver-Lube corrosion-resistant bearing series has been specifically developed for precisely these conditions, and has proved more than up to the job.

Hygiene is only one of the challenges in these industries. Their manufacturing processes are often high-speed and continuous, and minimal stoppages and extremely short maintenance periods are the norm. So any components need to be robust, designed for trouble-free operation, and ideally maintenance-free.

Those are the criteria that have informed the engineering design of the NSK Silver-Lube series of bearings.

Attention to detail

Silver-Lube housings are made from PBT thermoplastic polyester resin. This isn't just non-corrodible, but is also resistant to detergents and a wide range of chemicals used in wash-downs. The smooth surface of the housings also helps to make wash-downs more effective, while the fact that housings are free from paint and coatings means there's nothing which can chip or flake off and find its way into products.

> "MINIMISE MAINTENANCE, MAXIMISE PRODUCTIVITY, AND MAINTAIN THE HIGHEST STANDARDS OF HYGIENE ..."

Even the specially moulded-in stainless steel reinforcements around the bolt holes have been designed to provide the minimum number of places where bacteria can grow.

Taking the heat

The bearing rings and balls themselves are manufactured from high-grade martensitic stainless steel, with austenitic stainless steel ball and cage, flinger and set screws. All seals are made from durable, heat-resistant silicone rubber, and the bearing inserts are charged with high-quality aluminium complex food grade grease, which is classified to NSF Grade H1.

The units can also be re-lubricated, for an even longer, trouble-free life.

For even greater sealing and protection, polypropylene end-covers can be fitted which are suitable for operating temperatures from -20 to +90°C.

> "DESIGNED TO PROVIDE THE MINIMUM NUMBER OF PLACES WHERE BACTERIA CAN GROW..."

Engineered to perform

A choice of Silver-Lube bearings in pillow block, 2-bolt flange, 4-bolt flange and take-up unit configurations makes it easy to find the optimum solution for your bearing application.

However, NSK engineers can also work with you to analyse critical points in your production process, measure and monitor efficiency, and propose alternative bearing products – to help you minimise maintenance, maximise productivity, and maintain the highest standards of hygiene.

Salad days!

The harvester machine used by a producer of baby leaf salads suffered frequent bearing failures. The low-cost shaft-supporting mounted unit bearings were badly affected by dirt and water ingress. Breakdowns led to production losses and sometimes to spoilt crops.

NSK experts reviewed the application and operating environment, and recommended Silver-Lube bearings. During the following harvest only two failures occurred, which meant the customer halved the costs caused by production losses, and also increased productivity: saving approximately £56,000 in one season.

THE GREAT **BAKING BELT OFF**

Jon Tennant
Product Marketing Manager - Modular

What sticks to a conveyor belt even more persistently than Paul Hollywood sticks to the Great British Bake Off? Bread dough. At least that's what one industrial baker found. But fortunately ERIKS found a non-stick solution.

The two side-by-side conveyor belts causing the sticky issue are used to convey bread dough up a 60° incline, at the same time as the dough is compressed and spread out across them. At the top of the slope, a horizontal length of belting then conveys the dough to another horizontal conveyor that drops the dough into a hopper.

> "DOUGH OFTEN STICKS TO THE PVC BELTING ..."

Or, as the bakery discovered: doesn't.

Instead, the dough often sticks to the PVC belting and even tries to wrap around it. The belts also tend to mistrack, meaning they last only 3-4 months each before needing replacement – which means extensive downtime. And the slippage and pulsation of the PVC belts also stretches and compresses the dough, making it uneven.

All in all, a tricky, sticky problem.

Using their loaf

ERIKS engineers applied their know-how to find a replacement belt which would solve all the customer's problems at once. Their answer was the Ammeraal Beltech uni M-QNB NS (Non-Stick) Modular Belt.

With a non-stick surface and reduced contact area, the belt is less easy for the dough to cling to in the first place. But it also incorporates pivoting belt hinges and a 0.5" pitch. This means the belt curves easily around the small idler rollers on the centre-driven conveyor, and is a perfect fit with the tight turns and with the scraper on the bottom of the centre-driven conveyor.

In fact, the pivoting belt hinges actually help to force the dough off the belt surface.

But while the dough slips off easily, the belts slips less.

> "THICKER TOOTH PROFILE AND DEEPER POCKETS UNDERNEATH..."

A thicker tooth profile and deeper pockets underneath than competitive PVC belts help create better sprocket engagement and a positive sprocket drive. This reduces belt slippage, which creates a steady and consistent drive. And this in turn means there's less stretching and compressing of the dough, for more consistent product quality.

Rising to the occasion

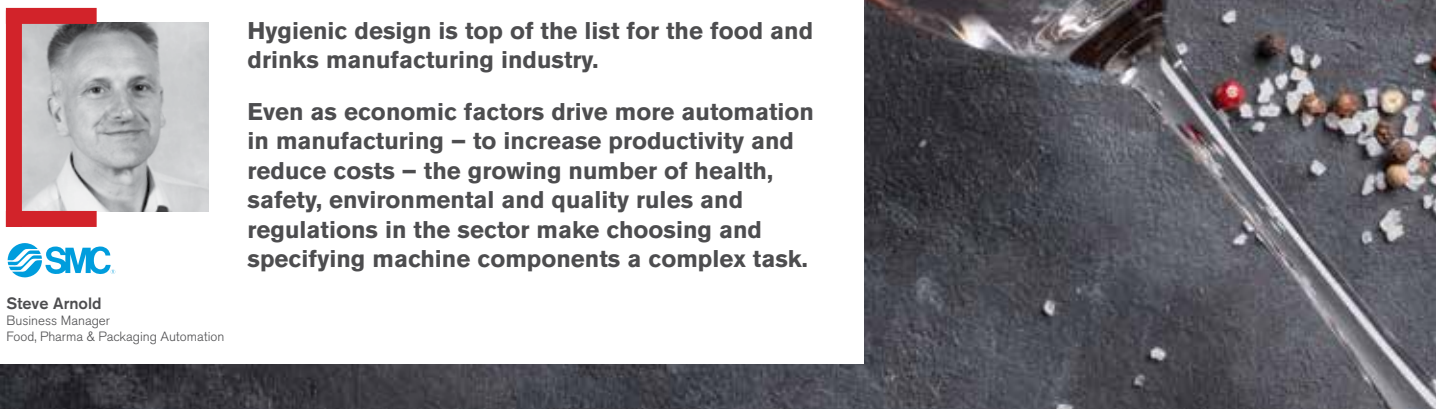
The precise and positive sprocket engagement, combined with effective tracking, also helps to prolong the life of the Ammeraal Belt. Compared with a PVC belt, it lasts 4-6 times longer.

And then, when it eventually does need maintenance or replacement, the locking pin on the belt makes it quick and easy – unlike the extensive downtime required to replace a one-piece PVC belt.

> "LASTS 4-6 TIMES LONGER THAN A PVC BELT..."

With easier product release from the non-stick surface, and a longer service life, the Ammeraal Beltech uni M-QNB NS Modular Belt has increased production line uptime and saved the customer's dough, in more ways than one.

WHAT'S MEAT AND DRINK TO THE FOOD AND BEVERAGE SECTOR?



Hygienic design is top of the list for the food and drinks manufacturing industry.

Even as economic factors drive more automation in manufacturing – to increase productivity and reduce costs – the growing number of health, safety, environmental and quality rules and regulations in the sector make choosing and specifying machine components a complex task.

Steve Arnold
Business Manager
Food, Pharma & Packaging Automation

The cleaning requirements for machines and systems in the food processing sector go far beyond those in most non-food related industries. Equipment not only needs to incorporate hygienic-design components to speed up the cleaning process, but those components also need to be manufactured to withstand harsh and often corrosive cleaning fluids.

The drinks industry faces similar challenges.

The combination of fruit juices, sugar, syrups, flavourings and additives can be extremely susceptible to micro-organisms, which can greatly increase the risk of contamination. So processes involved in the drinks industry need to be closely monitored, and high levels of cleanliness need to be adopted and maintained.

> "THE STARTING POINT FOR AVOIDING CONTAMINATION IS GOOD HYGIENIC DESIGN..."

> "HYGIENIC-DESIGN COMPONENTS TO SPEED UP THE CLEANING PROCESS...."

Steve Arnold is the food and drinks expert at SMC – the world leaders in pneumatics. He not only has many years' experience in the industry, but is also involved in the European Hygienic Engineering Group, which keeps him up to speed with the latest legislation. He's well-versed too in the requirements of the Food & Drug Administration and the international standards of the Food Sanitary Laws (FSL).

Steve believes the starting point for avoiding contamination is the adoption of good hygienic design. It helps with the efficient cleaning that's critical to achieving high levels of hygiene, and it keeps cleaning time to a minimum, to maximise line operating time.

With that in mind, here are Steve's Three Rules' of Hygienic Design.

CIP, SIP and SMC

Take cylinders, for example, the food and beverage industry uses pneumatic cylinders to divert, collate, sort and dispense food during automated manufacture. They're also used further downstream in the manufacturing process, for automated sealing, labelling, wrapping, box erecting and closing.

In all areas on a batch-mode production line, they'll be subject to automatic cleaning in place (CIP), and subsequent sterilisation in place (SIP) between batches.

One of the biggest challenges is co-ordinating batch-mode production lines with the cleaning processes. During the automated processes, acids, alkalis, disinfectants and saturated steam circulate in a cycle, creating a very aggressive environment for cylinders and other components.

Electro-polished, high-quality stainless steels provide good CIP capabilities, with good corrosion resistance even in this aggressive environment. However, it's essential not to overlook one potential problem which can arise even with a stainless steel cylinder.

If an adhesive film label is used on the cylinder, it may not only trap food, but the CIP regime may also erase any information printed on the label, or remove the label completely – causing problems later for maintenance personnel. Modern techniques of laser marking directly onto the cylinder barrel eliminate both these issues.

> "EASY TO CLEAN; EASY TO SEE IT'S CLEAN..."

As you'd expect, within their standard product range of over 12,000 components with approximately 730,000 variants, SMC have a wide selection of hygienic-design products. All of which adhere to Steve's Three Rules, to ensure they don't leave food and beverage manufacturers with a nasty taste.

Hygienic design rules, OK

Steve's First Rule of Hygienic Design is:

for effective cleaning, all components, pipes, connections and seals should be as simple and residue-free as possible.

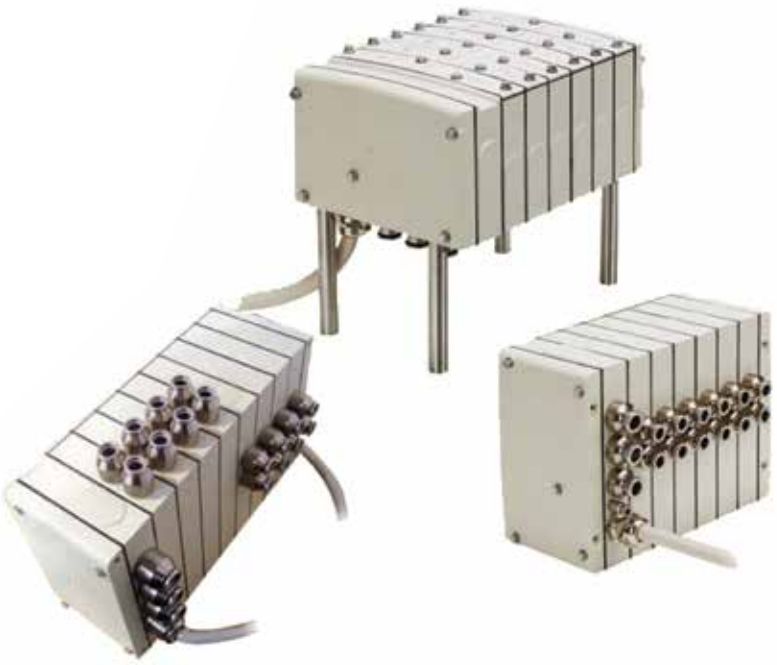
For cylinders, this means the design must be free from grooves, recessed corners, trap points and socket head bolts. Auto-switches for position detection must be either internally fixed or distanced from the cylinder body to eliminate food traps. Steve's mantra when evaluating a hygienic design is simple: "Easy to clean; easy to see it's clean".

Steve's Second Rule relates to the construction material used:

all components that come into contact with foodstuffs must be made from corrosion-resistant stainless steel, together with food-safe, regulation-conforming plastics and elastomers.

Steve's Third Rule is that:

every component – cylinder, valve, valve manifold, pressure sensor or flow meter – must be easy to clean when installed.



A PET'S BEST FRIEND

Gautier Perrin
Key Accounts Technical Manager

The operation of the pellet presses at a market-leading pet food manufacturer's facility was a complete dog's dinner. Forced shutdowns, bearing failures and an average bearing lifespan of just three months meant something had to be done. Total UK came when they were called.

The temperature in the customer's pellet press bearings was frequently exceeding 100°C. This was the cause of the high number of forced shutdowns, as well as a drastic shortening of bearing life.

In addition, the customer's use of a non-food-grade lubricant opened them up to the risk of product contamination and the associated potential costs and reputational damage.

Total's solution addressed all the problems with one high-quality grease.

Stable under pressure

Total's NEVASTANE XS is a range of calcium sulfonate greases. Formulated with a 100% synthetic base oil, it's perfect for food pellet presses for two reasons. Firstly, because of its thermal stability. And secondly because of its intrinsic extreme pressure (EP) properties.

The fact that bearing temperatures in the customer's pellet presses were reaching well over 100°C made a grease with a high viscosity index vital. So Total UK proposed NEVASTANE XS 320, which not only has the required viscosity properties, but also boasts a National Lubricating Grease Institute (NLGI) grade of 1.5. This helps to ensure the circulation of the grease within the central greasing system.

> "ADDRESSED ALL THE PROBLEMS WITH ONE HIGH-QUALITY GREASE..."

The customer put the NEVASTANE XS through several weeks of trials in their product presses, and quickly noticed the difference.

£50k savings per annum

With the NEVASTANE XS grease in place and lubricating effectively, the temperature of the bearings in the presses dropped dramatically. This led in turn to a significant decrease in the number of equipment failures and resulting forced shutdowns – as well as helping to prolong the life of the bearings.

At the same time, because NEVASTANE XS is a food-grade product, the risk of product contamination was greatly reduced. So the customer was able to optimise food safety, at the same time as increasing productivity to meet production targets.

Together with their global network of affiliates and warehouses, Total UK has technical experts who can support customers with Hazard Analysis and Critical Control Points (HACCP) planning and implementation. In this particular case, at the end of the trial period, the customer and Total's technical team conducted a joint in-depth review of the lubricant's performance. This revealed that, in addition to the benefits outlined above, the customer's lubricant consumption had been cut by more than 20%.

Taking the reduction in spending on lubricant, together with the increase in equipment uptime, the customer was able to save around £50,000 per annum.

> "OPTIMISE FOOD SAFETY, AT THE SAME TIME AS INCREASING PRODUCTIVITY..."

The cat's whiskers

Though protection against product contamination was a bonus for this pet food manufacturer, for any manufacturing plant producing food for human consumption, it's essential. So choosing NEVASTANE products ensures they can meet the highest food standard requirements.

All NEVASTANE products meet NSF H1, for use in applications where incidental food contact may occur. They are also compliant with ISO 21469, which is the leading industry standard for food safety.

Comprising food-safe oils, greases, aerosols and other lubricants, the Total NEVASTANE range of synthetic lubricants includes synthetic PAO, PAG, Ester, calcium sulfonate complex and PTFE greases. And all Total NEVASTANE products are allergen-free, GMO-free, and Halal and Kosher certified.

Made to comply

Making a product which meets the highest levels of food safety compliance means the product's own manufacturing process has to be to a high standard too.

Total is one of the few major oil companies to hold ISO 21469 certification in Europe. This is the highest accolade a food grade lubricant manufacturer can achieve, and Total takes a two-pronged approach to meeting its requirements.

Naturally the Total NEVASTANE product itself is formulated using an NSF H1 compliant substance. But also, the plant in which it is manufactured is run for optimum

> "LUBRICANT CONSUMPTION CUT BY MORE THAN 20%..."

cleanliness. The whole manufacturing line is flushed through thoroughly before any food-grade product is to be made, to prevent any possibility of cross-contamination.

So choose any NEVASTANE product, and you can be sure of food safety compliance. Because for food-safe lubricant manufacture, Total is top dog.

Foodsafe? You need TOTAL NEVASTANE

Industry leading standards for Quality Hygiene and Traceability

To ensure our commitment to applying the upmost stringent guidelines all our plants producing the TOTAL NEVASTANE range are ISO 21469 as are the TOTAL NEVASTANE products produced in these facilities.

ISO 21469 means:

- Formulation review
- Product testing
- Traceability and verifications
- Annual independent audit of our facility and products
- Investigation of complaints
- Corrective action and enforcement
- Risk Assessment
- Continuous Improvement

NSF Nonfood Compounds Program Listed ISO 21469 Certified

K

H

GMO

ALLERGENS

TOTAL nevastane H1 LUBRICANTS

COMPLIANCE DOESN'T HAVE TO BE COMPLEX

Ian Glover
Application Engineer
Industrial Hose
ERIKS

Even in an industry with notoriously strict compliance requirements, finding a hose solution that keeps you on the right side of the regulators and keeps your budget on the right side of the balance sheet doesn't have to be hard.

As a leading global pharmaceuticals manufacturer discovered.

An FDA audit is never something to look forward to. And an FDA audit which results in several non-compliance notices is something you'd rather forget. But that's what happened to one pharmaceuticals company, in relation to the storage, supply and control of hose and ducting in one of their manufacturing centres.

"A QUICK AND EFFECTIVE CURE..."

Needing a quick and effective cure, the manufacturer contacted ERIKS, who reacted quickly with a store survey of their own to assess the extent of the problem.

With 30 years' experience of hoses and ducting, the engineer involved immediately spotted hose products which were not only non-FDA approved, but didn't even meet the customer's own Best Practice requirements.

Storing-up trouble

One of the issues raised by the FDA was the lack of product application data, and lack of control of hose usage across the site. Part of the problem was that the hoses in-store had been sourced from several different suppliers, who had provided different products for the same application. And none of them were correct.

Since the applications in question required GXP hoses – approved for physical contact with products for human consumption – the situation was serious, with the potential for product recall.

ERIKS had to respond with a hose solution which was compliant, correct and, most of all, quick.

Complexity made simple

The customer had been led to believe that the need for several hose applications across a number of different production areas meant a complex solution was inevitable.

"FULL TRACEABILITY OF ALL COMPONENT PARTS..."

But after liaising with procurement, engineering and stores teams, ERIKS brought their know-how to bear and devised a simple one-stop solution to meet all the customer's hose needs.

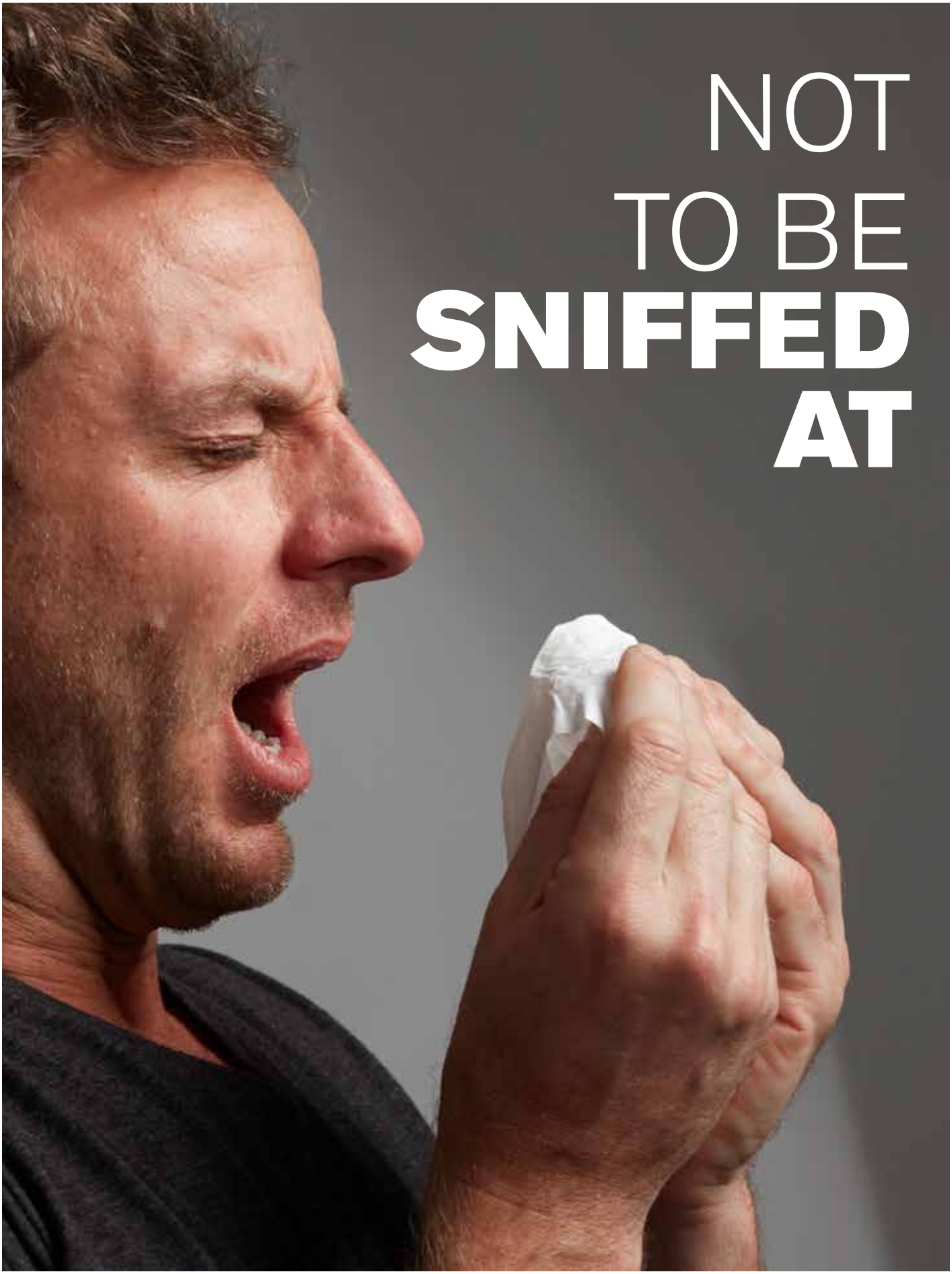
The answer was to standardise all ducting requirements to one polyurethane anti-static food grade duct, suitable for all areas of the site, regardless of application. This immediately addressed the FDA issue of wrong products being used in the wrong applications, as well as ensuring the product was FDA- and customer Best Practice-compliant.

"CONSOLIDATION OF HOSE PRODUCTS AND PURCHASING..."

ERIKS were also scrupulous about providing precise product data, including specification, test procedures, certifications and so on. For hose assemblies, this included full traceability of all component parts.

What's the customer saved?

Through consolidation of hose products and purchasing: tens of thousands of pounds per annum. Through FDA compliance: the risk of a shutdown, the costs of lengthy unscheduled downtime, a potential product recall – and the business's reputation.



NOT TO BE SNIFFED AT

MANN+HUMMEL
Steve Brady
Sales Manager UK and Ireland
Intelligent Air Solutions (IAS)

You drive to work in your modern car with the air conditioning on and breathe fresh filtered air. Then you step inside your place of work and you start to sniffle, your eyes water and there are unpleasant odours. Surely it's time that your HVAC filtration was as effective as it is in your car?

A brand-new product from Mann+Hummel – tried and tested in the automotive world and now adapted for building use – means it can be.

It can take multiple dedicated filter layers to make the filtration in cars so effective. But this level of filtration hasn't been available in HVAC systems. Until now. Now the new Mann+Hummel Frecious Comfort filtration solution brings the proven technology out of the car and into the HVAC system. Food and beverage or pharmaceutical, office or school, shopping centre or hospital, in fact anywhere that hygiene, odour elimination and occupant comfort are important.

> "WHEREVER HYGIENE, ODOUR ELIMINATION AND OCCUPANT COMFORT ARE IMPORTANT..."

The Helmholtz Centre, Munich, predicts that by 2040, 50% of Europeans will be suffering from allergies. According to the Robert Koch Institute, over a quarter are already affected. Of these allergy sufferers, 86% are sensitive to pollen and 14% to mould – neither of which traditional filters can deal with effectively. But both of which the Frecious Comfort range can filter or eliminate, to provide cleaner, fresher, odour-free air wherever you need it.

Filtration to the power of 4

The new Frecious Comfort filter provides best-in-class filtration for HVAC systems, by using up to four separate layers of filtration media.

The first layer provides particulate filtration that's more effective than the levels recommended by the World Health Organisation (WHO). The WHO makes indoor air quality recommendations relating to PM10 and PM2.5 (10 microns and 2.5 microns). Whilst the new Frecious Comfort range filters out 50-60% of particulate matter as small as PM1 (1 Micron).

Pollen measures between 10-100 microns in size, and at this size is filtered by a standard particulate filter. However filtering is only the start, because pollen is not an allergen, but is a carrier that contains tiny allergen proteins.

When pollen is trapped inside a filter it's prevented from entering the atmosphere. But if the filter was to be disturbed, or if the pollen was to endure mechanical stress, it could burst open and release the allergen proteins. These proteins are so small that they slip through a standard filter unhindered. However the Frecious Comfort filter provides a second layer of protection, with an anti-allergenic coating which uses a natural polyphenol which inactivates free allergens.

And the protection doesn't stop there...

Fresher-smelling air

Even with an effective standard filter, unpleasant odours can still enter the conditioned space. That's not necessarily because they penetrate the filter or exist within the atmosphere, but because the filter itself can actually cause them.

Airborne spores, micro-organisms, dust particles and moisture that collect on the filter provide a perfect breeding ground for bacteria and mould. In turn these can produce unpleasant odours which are circulated within the air.

> "THE FRECIOUS COMFORT FILTER PROVIDES MORE LAYERS OF PROTECTION..."

The Frecious Comfort filter stops this from happening, with a third layer of protection: an anti-microbial coating which prevents bacteria and mould growth. This keeps the clean side of the filter clean and hygienic, and prevents unpleasant odours. Though if you want even more powerful odour protection, there's an optional fourth level of protection in the form of an additional activated carbon layer. This can be seen within the Frecious Comfort Carboactive filter.

The dedicated carbon layer removes odour and captures harmful gases such as ozone, nitrogen oxides and sulphur dioxide.

The all-in-one solution

This level of filtration has never before been available from a single stage HVAC filter. Previously, multiple filtration stages would have been required, such as particulate, carbon and HEPA stages (in order to capture the tiny allergen proteins). So it's highly effective without having a high multi stage cost.

Both the Frecious Comfort and Frecious Comfort Carboactive are the same size and shape as standard filters, so in most units you can simply swap your traditional filter for a Mann+Hummel filter, without modifying the housings.

> "HIGHLY EFFECTIVE WITHOUT BEING HIGH COST.."

Furthermore, the Frecious Comfort range is also available housed within its own portable air purifier. So employees, pupils, patients and customers in areas without air-conditioning can still benefit from allergen-free, odour-free air.

It's the perfect solution for anyone who's allergic to spending more money than they need to.

WHY IT'S TIME TO BIN THE BULK

SC Johnson PROFESSIONAL
A family company

Paul Jakeway
Marketing Director

You don't have to be operating in a hygiene-critical sector like food or pharmaceuticals to make hygienic handwashing facilities essential for employees.

But research has shown that some soap dispensers aren't the solution to contamination. They can be the cause of it.

Compared with old-fashioned bar soaps, "bulk" – or reservoir refillable – soap dispensers are a significant improvement. They're less messy, and inexpensive. But what's good for the budget has now been recognised as good for bugs too.

Because the dispensers are not sealed, it's fairly easy for bacteria, fungi or moulds to find their way into the dispensers: from the environment, or from the hands of the person refilling the system. Then once in the dispenser, they will start to multiply and they're perfectly positioned to end up on the very hands that people believe they are washing effectively.

The risk increases when dispensers are not refilled from empty, but "topped off" while some old soap remains inside. Any contamination already present mixes with the new soap and carries on spreading the bacteria.

Even cleaning doesn't always reduce the contamination risk. A study[1] found that

> "25% OF BULK DISPENSERS WERE EXCESSIVELY CONTAMINATED..."

some microorganisms – known as "biofilms" – stick to surfaces even when cleaning is carried out with aggressive bleaches.

But is this anything to worry about, or is it just a storm in a soap dispenser?

Dishing the dirt

Experienced scientists have looked closely into bulk soap dispensers and not liked what they've seen.

> "A 1-LITRE CARTRIDGE ENABLES OVER 1,400 WASHES..."

Researchers at the University of Arizona found that 25% of bulk dispensers were excessively contaminated[2]. Japanese research discovered 17 different types of bacteria in soaps that came from bulk dispensers[3]. Another study[4] concluded that bulk dispensers can leave hands with 25 times more bacteria after washing than they had before!

So although bulk dispensers might be easily refillable, and inexpensive, they're not the most hygienic or safest choice.

Sealed for safety

As a safe alternative to bulk dispensers, sealed dispenser systems are refilled by inserting a sealed cartridge of soap into the dispenser. This means there's no contact between the product and the environment before it's dispensed for hand washing, which minimises the risk of contamination.

This is in line with a study entitled Bacterial Contamination and transfer after Use of Contaminated Bulk-Soap-Refillable Dispensers, which stated that "extrinsic contamination of soap can be eliminated or considerably reduced through the use of sealed-soap-dispensing systems[5].

It's not only researchers who find sealed containers an improvement. So does anyone who has to fill them.

Filling a bulk dispenser is a messy process, whereas an empty sealed cartridge can be quickly and easily changed for a full one, with no chance of spillage and only minimal cleaning needed. It saves mess, saves time, saves soap – and also saves money.

Savings by the handful

Sealed cartridge dispensers deliver exactly the right amount of whichever cleaning product you're using. Bulk dispensers, on the other hand, deliver the same quantity – which can mean costly wastage. So for that reason alone, sealed cartridge dispensers are more economical. But there are even more savings dished out with every squirt of soap.

> "SAVE MESS, SAVE TIME, SAVE SOAP..."

A sealed cartridge dispenser can use highly-effective foam soaps rather than lotions. These foams use less soap per handwash than a lotion, with a standard 1-litre cartridge enabling over 1,400 washes. They can also cut water consumption by up to an estimated 45%[6].

European Union Ecolabel Certified foam formulations help reduce environmental impact. And because less product is required to do the same job, less packaging is required, which means less packaging waste. Sealed cartridge dispensers are robust and durable, they're designed for high usage environments, so some cartridge dispenser manufacturers offer a lifetime guarantee.

Now wash your hands

A washroom with a sealed cartridge dispenser system can stay cleaner longer, making it a much more pleasant place to stay long enough to wash hands thoroughly and effectively. And with training available on when and how best to wash hands, and advice on the optimum products for specific environments, you'll be doing your best to make sure your employees take handwashing seriously.

But first you have to bin the bulk – and wash your hands of your bulk dispenser units.

1. Lorenz, L., Ramsay, B., Goeres, D., Fields, M., Zapka, C., Macinga, D. Evaluation and remediation of bulk soap dispensers for biofilm, Biofouling 2012; 28:1 99-109
2. Gerba, C.P. et al, Bacterial Contamination of Liquid Soaps, 2006, University of Arizona
3. Amemiya K., Taguchi F. 1992. Survey of bacterial contamination of hand washing liquids. J. Antibacterial Antifungal Agents 20:459–463
4. Zapka, C., Campbell, E., Maxwell, S., Gerba, C., Dolan, M., Arbogast, J., Macinga, D., Bacteria Hand Contamination and Transfer after Use of Contaminated Bulk-Soap-Refillable. Applied and Environmental Microbiology 2011; 77:9 2898-2904
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6. Independent research commissioned by Deb Group

THE SEAL OF APPROVAL

David Hepburn
Application Engineer
Sealing and Polymer
ERIKS

It's often even harder to get regulatory approval for materials used in pharmaceutical production than in the food, beverage and chemicals sectors.

So manufacturers face the double challenge of finding process materials and components which can do the job, and which keep them compliant.

One gasket technology company has a well-earned reputation for getting problems solved, sealed and approved.

A global pharmaceutical manufacturer had a problem with leaking pipework gaskets, and needed a solution that was not only effective but also USP-VI compliant. The expanded PTFE gaskets they were using were compliant, but their malleable construction meant they could catch on flanges during pipework reconnection, and it wouldn't be noticed until a leak developed.

The company asked ERIKS for a solution, and Clipperlon 2115 from Leader was suggested.

Always compliant, always leak-free

The Leader Clipperlon 2115 gasket is made from natural white solid Modified PTFE. This is more rigid than expanded PTFE, making it easier to spot extra resistance during tightening, if the gasket has caught on a flange.

In addition, the material is exceptionally compressible, with a low minimum seating stress value. This makes it ideal for low torque applications like pipework. And it offers high chemical resistance across a wide range of temperatures, so it's durable and reliable in a variety of different operating environments.

Specially designed for high-purity applications, Clipperlon 2115 is totally free from pigments or any other additives which would fail to comply with USP-VI restrictions. By replacing existing pipework gaskets with Clipperlon 2115, the customer now has leak-free, fully-compliant seals which are easier to install without problems.

> "PROBLEMS SOLVED, SEALED AND APPROVED..."

Using ERIKS' gasket cutting facility, the customer can also order the gaskets to be cut to the exact dimensions for each application, to ensure a perfect fit every time.

Getting it taped

For another blue-chip pharmaceutical company, gaskets weren't the solution, but the problem.

Their manway oven door seals required gaskets to fit glass-lined flanges which measured over a metre across. Their PTFE gaskets were not only failing to provide a complete seal, but were also bonded onto the doors with a non-compliant adhesive. The age of the flanges, and the lack of cleaning over time, had led to a build-up of old material which caused the thickness of gasket required to vary from 3-5mm – resulting in poor sealing where a flat gasket couldn't cope with the variation.

> "ERIKS' GASKET CUTTING FACILITY ENSURES A PERFECT FIT EVERY TIME..."

Leader had the solution again, this time in the form of Leader Clipperlon 660 Self-Adhesive multi-directional ePTFE Gasket Tape.

One size fits all

Supplied on a 10m roll and available in widths from 10-65mm, and a choice of thicknesses from 2-9mm, Clipperlon 660 is a tape which is not only flexible and compressible, but also highly conformable.

Whether it needs to fill nicks or accommodate burrs on the flange, the tape adapts to the roughness and unevenness to provide a leak-free seal. It can also be easily manipulated around the flange, inside and outside bolt holes, and can even be used double-thickness if required to maintain the seal. In other words, one size fits all.

"SPEEDY, EFFICIENT AND HIGHLY COST-EFFECTIVE..."

The customer can simply hold the Clipperlon 660 tape in stock, and change over the gaskets on the manway doors as and when required, with their on-site engineers carrying out the relatively simple swap and fitment. Compared with the time and cost of manufacturing and fitting a unique gasket every time, it's a speedy, efficient and highly cost-effective solution, which can easily be factored into a planned maintenance schedule.

Designed for the kind of high-purity applications that are found in the pharmaceutical industry, Clipperlon 660 Tape is USP-VI compliant, made from natural white Expanded PTFE completely free from pigments. To ensure its purity the tape is unbranded, as even on-tape branding could potentially introduce non-compliant additives.

Like Clipperlon 2115, Clipperlon 660 has outstanding chemical resistance across a wide range of temperatures, high compressibility characteristics, and low minimum seating stress – making it ideal for low torque applications.

Wherever the seal is critical and USP-VI compliance is essential, Leader Clipperlon gaskets and tape get customers' approval.

PUTTING **CONTAMINATION** IN ITS PLACE

piab

Ian Hodkinson
Technical Sales
Office Manager

Powder handling throws up a specific set of safety and hygiene challenges. A collaboration between Piab AB and Fette Compacting GmbH highlights the way to resolve them.

As OEM experts in tablet-making equipment, Fette Compacting produce a highly successful tablet press used in the pharmaceutical industry and, as in other sectors such as chemical, food and beverage, face the challenge of moving powders, or products with medicinal or irritant causing particles, hygienically, safely and efficiently.

Many choose a Piab vacuum conveyor solution, but then have the problem of ensuring suitable integration of the conveyor and the tablet press, without powder or dust leakage between the two systems.

Piab and Fette Compacting GmbH decided to collaborate to produce a range of standard piFLOW® vacuum conveyor configurations, and a standard interface to link them with Fette Compacting's tablet press.

> "THE CHALLENGE OF MOVING POWDER INTO THE PRESS, HYGIENICALLY, SAFELY AND EFFICIENTLY...."

This collaboration solves a previously tricky engineering problem for customers – but Piab haven't stopped there.

Let us spray

A working environment where there's a danger of hazardous powders escaping into the atmosphere is inherently unsafe for workers.

> "SOLVES A TRICKY ENGINEERING PROBLEM..."

Inhaling a chemical dust from pharmaceutical tablet manufacturing will clearly have consequences. But over long periods, even inhaling an otherwise harmless bread flour can present a health risk. To prevent dust escapes and protect workers, Piab can also install a Wet-in-Place (WIP) system option in their vacuum conveyor.

The WIP system uses nozzles to spray water onto any dust left in conveyors.

Whether the dust is from a foodstuff, a pharmaceutical or any other hazardous material, by wetting it in place it's prevented from escaping into the atmosphere where it has the potential to be harmful. It also means it stays in place even when the equipment is opened up for cleaning or maintenance.

Because the dust is, effectively, held in place until it can be removed, the need for Personal Protective Equipment is minimised.

Cleaning is also much quicker because wet dust is easier than dry to handle – and handle safely – and downtime for maintenance is reduced.

The power of three (and two)

For maximum coverage and optimum performance, the WIP system can have up to three spray modules per conveyor. More modules means more water, making it easier to capture the maximum amount of material, as quickly and effectively as possible.

> "WETTING IN PLACE PREVENTS ESCAPES INTO THE ATMOSPHERE..."

With two leading companies now collaborating to offer a turnkey powder transport solution, customers can install a fully integrated system which eliminates the risk of powder leakage at the conveyor / tablet press interface, and helps create a safer, cleaner working environment.


piab

NO MAGIC WAND NEEDED

If half the motors that fail on your site every month have the same failure mode, you might think it needs a magic wand or a miracle to solve the problem.

But for a customer operating the largest tinned soups and beans manufacturing facility in Europe, all it took was some ERIKS know-how to reduce that figure from 50% to 6%.

Keith Hargreaves
UK Engineering Manager

ERIKS

To describe the operating environment for the customer's motors as challenging would be an understatement. After every shift, the production line assets are subjected to a rigorous wash-down using high-powered water jets.

Whilst previous engineers had tried to keep on top of the situation with nothing more than maintenance, repair and replacement of failed assets, when ERIKS won an Asset Management contract with the customer their first step was to look at the bigger picture.

> "LOOK AT THE BIGGER PICTURE..."

The dry facts

ERIKS' analysis revealed that the majority of motor failures at the site were directly related to water- or moisture-ingress to electrical assets. Since the frequent wash-downs are a non-negotiable part of the production process, the issue was how to reduce or eradicate the amount of water coming into contact with electrics.

This didn't need a radical re-think or a miracle cure. All that was required was a clear-sighted review of the assets and some engineering Best Practice.

ERIKS' North-West Regional Hub was the local facility with the know-how and resources to carry it through.

Upping the IP

The first step was clearly to improve the IP rating of the existing assets wherever possible.

ERIKS' engineers examined all the motors, using their experience to identify all the likely points of water ingress. They then optimised their ingress protection by – for example – replacing standard gaskets with rubber, installing double seals and lip seals on drive shafts, and sealing other potential points of entry for water or moisture, using silicon or other products.

Of course in all cases they were aware of the need to use only food-safe products in areas where there was any risk of product contact.

For some of the most vulnerable motors and gearboxes, ERIKS installed food-safe covers to provide complete protection against water ingress. For others, the assets were upgraded to replacements with a higher, IP55 rating, defined as: "water projected by a nozzle against the enclosure from any direction shall have no harmful effect."

> "CHALLENGING WOULD BE AN UNDERSTATEMENT..."

In addition, terminal boxes – often the most vulnerable point for water ingress – were treated with epoxy resin to maximise their water protection.

Engineering and education

Alongside the engineering initiatives which helped to improve the ingress protection of the assets, ERIKS' engineers identified the need to educate the cleaning teams on the use of jet washers during wash-downs.

As part of this process, ERIKS' staff worked alongside the nightshift to help operators and cleaners understand the need for greater care during wash-downs, and to advise them on how to achieve the same levels of cleanliness without forcing water unnecessarily into vulnerable areas of equipment.

As a result of all these initiatives and actions, ERIKS succeeded in reducing the percentage of motor failures associated with water ingress from 50% a month to 6%. This not only reduced maintenance and repair costs – helping to lower the Total Cost of Ownership of the assets – but also optimised motor reliability, and increased productivity by reducing downtime.

The X Factor

The successful outcome was thanks to a combination of factors. Firstly, ERIKS' experience, which enabled the engineers to establish the root cause of the failures. Secondly, ERIKS' know-how, which led to cost-effective solutions. Thirdly, the "X" factor: ERIKS' willingness to think outside the box and go the extra mile.

> "WILLINGNESS TO THINK OUTSIDE THE BOX..."

Repeatedly repairing failed motors or replacing them with identical models simply addressed the cause, not the effect. Taking a wider view enabled ERIKS to find a more lasting solution. And being prepared to step outside a basic engineering remit, working to educate operators and cleaners on best practice, for example, also helped to ensure that everything possible was done to resolve the issue for the customer.

By applying experience, expertise and know-how, and ensuring maintenance best practice was in place, ERIKS was able to deliver results. No magic wand, or even magic spanner, required.

Energy Savings of **53%**

HEATHROW'S MOST INTELLIGENT PILOT

xylem

Paul Wynnett
General Manager
Speciality Industry

Every day, an average of 1,200 flights arrive and depart from Heathrow; one of Europe's busiest airports. But while air traffic control, passport control, customs and the rest of the "front-of-house" services go about their business, behind the scenes there's an equally vital activity taking place.

And it's one which, until a recent pilot installation, was bringing operations down-to-earth with a bump on a far too frequent basis.

Next to Heathrow's Terminal 1 stands the central Area Sanitation Unit – a receiving station for waste pumped from aircraft toilets. This is no ordinary sewage waste, but waste containing a high level of non-biological solids such as plastics, wipes, nappies and even clothing. Often stringy, the material is difficult to pump as it catches easily on the impeller. This in turn can lead to partial or complete pump blockages.

While a complete blockage obviously stops the pumping operation altogether, even a partial blockage is a problem – increasing the energy consumption required to achieve the same pump performance.

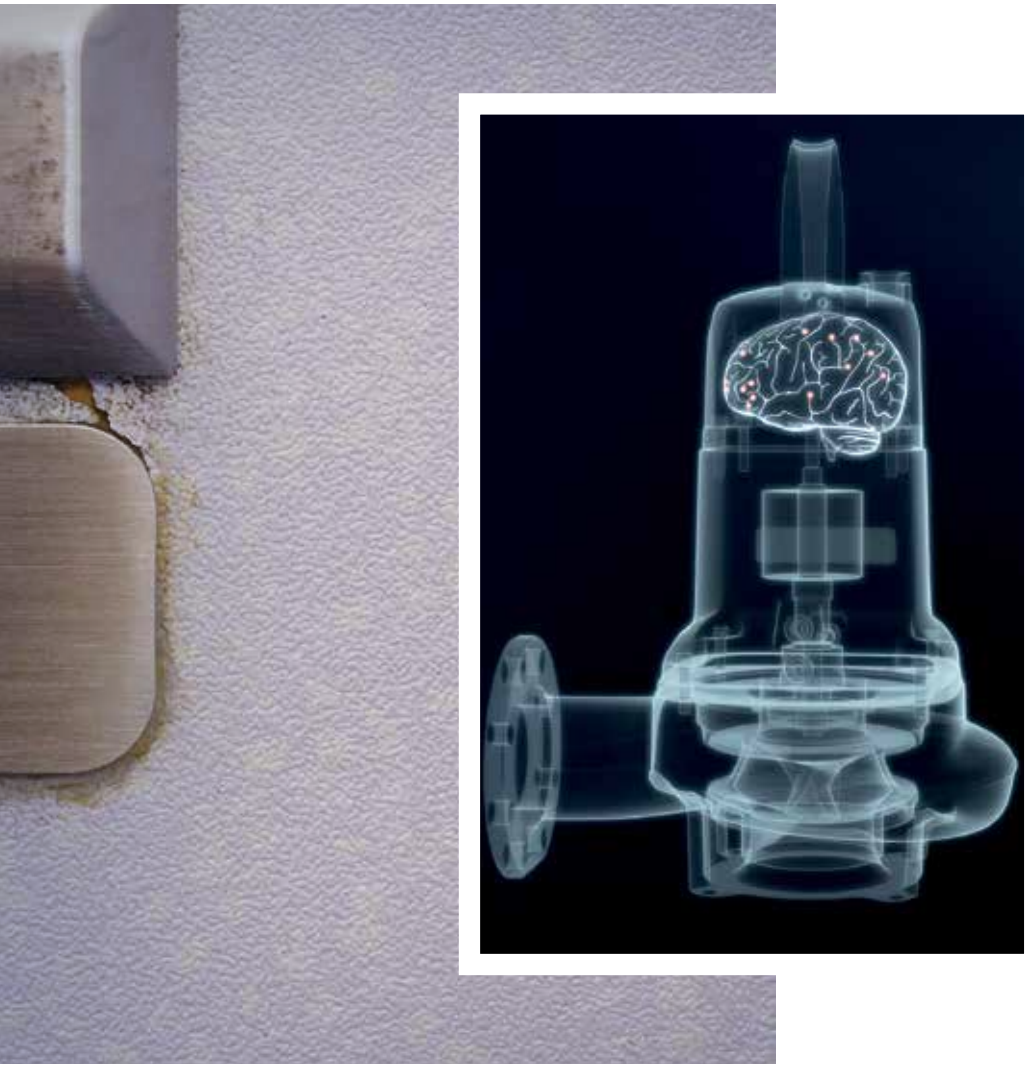
According to Ian Jolly, Systems Specialist for Water in Heathrow Airport Water Services Department, there could be two or three clogging issues at the Sanitation Unit every three months, and keeping the sump clean was a significant maintenance task.

"We used to see a shelf of fat and material deposits build up on the walls of the sump as well as floating debris. We frequently had to de-clog our wastewater pumps."

Experience plus intelligence

The Central Area Sanitation Unit is just one of a network of 120 pumping stations around the airport, operated and maintained by the Water Services Department. They have been using Xylem equipment for 25 years, so naturally turned to their trusted and experienced partner to help them find a solution to the clogging problem.

"SIGNIFICANTLY REDUCED BLOCKAGES..."



Xylem's recommendation was the new Flygt Concertor pumping system, with integrated intelligence.

The Flygt Concertor from Xylem is the world's first wastewater pumping system to combine built-in sump and pipe cleaning functionalities in a single integrated solution. It not only handles sump floating debris but also pipe sedimentation. In addition, the pump cleaning function together with Adaptive N-hydraulics effectively detects and solves clogging by large debris.

> "EFFECTIVELY DETECTS AND SOLVES CLOGGING BY LARGE DEBRIS..."

The Department agreed to trialling this unique, state-of-the-art solution, in a pilot installation.

No fat, and leaner bills

The Xylem Flygt Concertor system was installed in the Central Area Sanitation Unit in November 2015 – almost three years ago. Since then, the pumping system has gone from two to three clogging incidents a quarter to zero. Not only that, but the wet well environment has also markedly improved.

"Since installing Concertor," says Jolly, " we have had absolutely no clogging and the sump remains clean with no fat build-up. The cost savings are significant, at approximately 87.5% of the annual costs in cleaning and servicing."

However maintenance costs are not the only savings. Energy costs are down too.

The Flygt Concertor has an Energy Minimiser function, which works in association with the patented Adaptive-N hydraulics and the IE4-efficiency motor. These three features together ensure the pump always runs at its most efficient duty point. The pump also operates without the need for ventilation, cooling or heating of the cabinet, which is another energy-saving measure.

The result in the Heathrow Central Area Sanitation Unit is energy savings of 53%.

The simple answer

Despite its intelligence and high performance, the Flygt Concertor is a remarkably simple pump, designed without a huge increase in components, complexity or size.

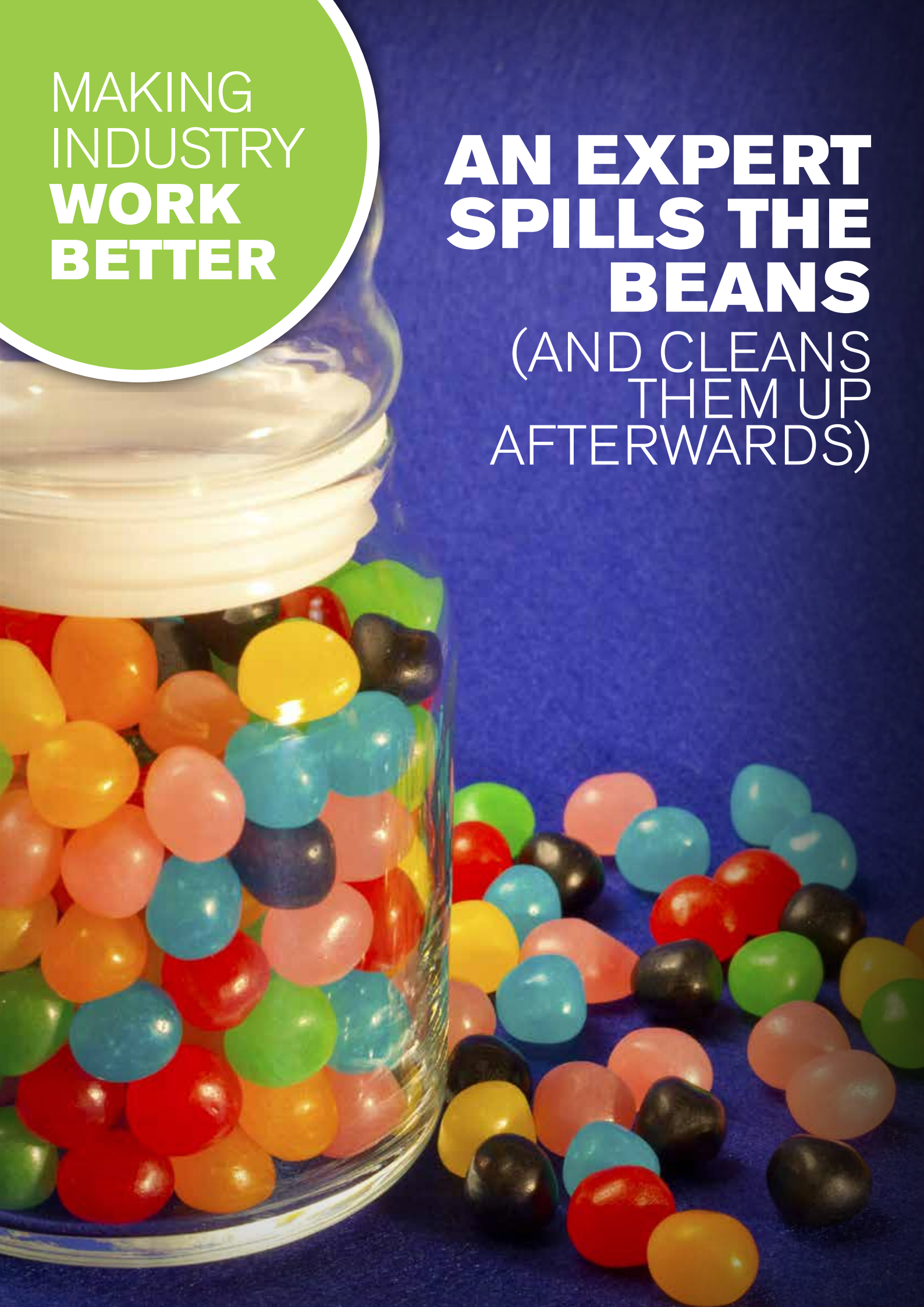
Jolly explains that the "Concertor's compact design allowed it to fit into the existing position within the pump station, without any extra investment required to enlarge the cabinet. It was simple to install and very user friendly. Actually, the trial pump was installed by one of the airport's Water Services mechanical technicians, who was not experienced in the commissioning of wastewater pumping systems and quickly gained confidence in the ease of installation and operation."

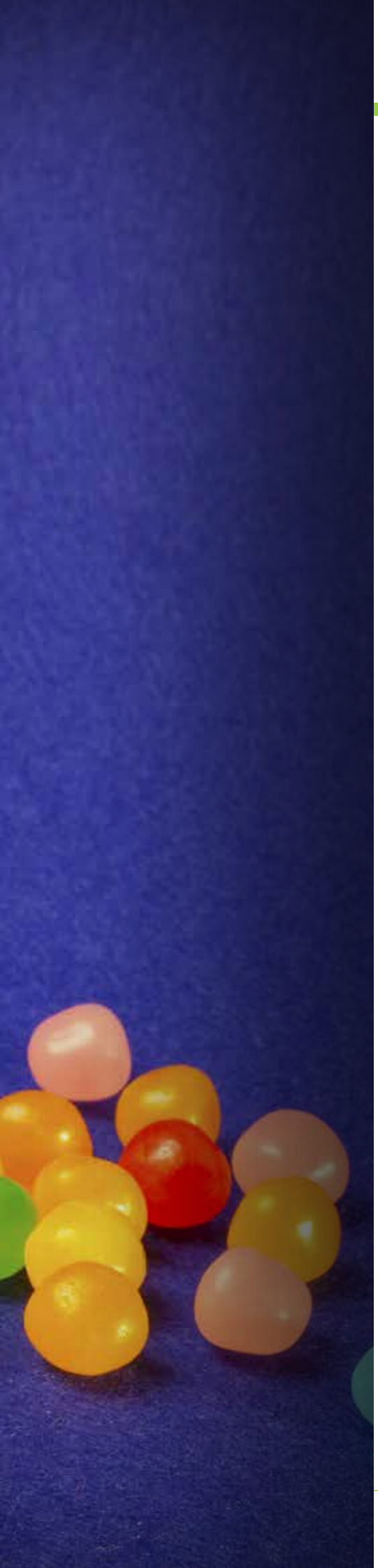
Not many of the 200,000+ passengers passing through the airport each day will ever think about the problem of aircraft toilet waste. The Flygt Concertor from Xylem means even the airport's Water Services Department has to think about it less.

MAKING INDUSTRY **WORK BETTER**

AN EXPERT SPILLS THE BEANS

(AND CLEANS THEM UP AFTERWARDS)





Paul Skade
Category Manager
Safety Products

If something on your site can spill, it will, sooner or later. Whether that spill causes injury, pollution, reputational damage and financial loss doesn't just depend on what's spilled, but also on what steps you take when it happens – as Paul Skade, reveals.

It's not only the obviously harmful chemicals, toxic substances, oils and so on which may cause problems when they spill. Even spilt milk has the potential to kill fish if it enters a watercourse in large enough quantities. So it's no use crying over it. You have to be prepared with an on-site emergency plan to contain, control and clean up a spill as quickly and effectively as possible.

In ERIKS' experience, around 94% of industrial end-users have at least one liquid on their site in a sufficient quantity to cause problems if it spills. And when it does, the owner of the material – or of the facility it's housed in – is responsible and accountable for the clean-up and risk mitigation.

> "NOT ONLY HARMFUL CHEMICALS, TOXIC SUBSTANCES AND OILS CAUSE PROBLEMS WHEN THEY SPILL..."

The best way to reduce the risk and the consequences is to ensure that liquids are stored appropriately, in bunded containers/areas, or using bunded pallets to help contain spills at source. However, accidents will still happen. Having an emergency spill control procedure in place will ensure that all those involved in dealing with a spill, will know exactly what to do..

Walk the walk

The first step is several steps; a walk around your site by a spill control expert and someone who knows the site well.

A fresh pair of eyes will see the site differently; spotting drains you may not have thought about, storage areas you've overlooked, and areas where spills could happen. Once you know where the potential problems lie, you can then put the equipment and procedures in place to deal with them.

Plan for problems

Having a written emergency plan will not only mean you're ready to act whenever necessary. It will also help you to ensure all necessary procedures have been considered and prepared for, and that employees know the part they have to play.

The plan should be simple, straightforward, flexible, and designed to achieve compliance with any relevant legislative requirements. Essentially, it should cover:

- Containing and controlling incidents to minimise the effects and limit the danger to people, the environment and property; and identifying who is responsible for doing so
- The measures required to protect people and the environment
- The actions to be taken to control conditions at spill events and to limit their consequences; including a description of the available safety equipment and resources
- Arrangements for staff training in the duties that will be expected of them
- Arrangements for informing local authorities and emergency services.

Know your liquids

All spills are not the same, so all spills can't be dealt with in the same way.

Not even all hazardous liquids can be dealt with using a "one size fits all" approach. They will have different properties which demand different techniques and equipment, such as a sorbent from one of three categories: oil-only, chemical, and universal.

Only when you know exactly what type of liquid you're dealing with can you work out the correct and most effective way to deal with it.

> "BE PREPARED WITH AN ON-SITE EMERGENCY PLAN..."

Dressed to spill

Different spills of different liquids require different appropriate clothing for an adequate level of protection. So it's vital that the PPE made available at the point of use should reflect the hazard or hazards that are present.

Personal protective equipment (PPE) should shield or isolate individuals from the chemical, physical and biological hazards they might encounter during a spill or leakage. So it needs to protect the respiratory system, skin, eyes, face, hands, feet, head and body.

> "ALL SPILLS ARE NOT THE SAME..."

Again, there's no "one size fits all" solution that can protect against all possible hazards, so PPE should be chosen carefully and used in conjunction with other protective methods. A good place to start your selection is with the 350+ pages of the ERIKS PPE catalogue, which includes summaries of legislation and regulations, to help you make the appropriate and safe choices.

Contain and clean

When a spill does occur, your priority should be to prevent it escaping into the environment – whether through the atmosphere, the sewer system or directly into soils or surface water.

It's only a minority of spills which have the potential to cause environmental damage, but those that do should be notified to the appropriate authorities immediately. You should also block a spreading spill with absorbents, to prevent the problem growing.

There are several different control and cleaning materials available, but one of the most effective is Melt Blown Polypropylene (MBPP) which absorbs quickly and comes in a range of options for different types of spills (chemical, oil only, and universal) and in a choice of formats (pads, rolls, pillows and socks).

> "ALL SPILLS ARE NOT THE SAME..."

You should have a spill kit containing the appropriate materials, conveniently situated for each potential spill source. It's also essential to have a kit auditing and management procedure in place, which will ensure that the kit is always fully-stocked. (Environment Agency spot-checks will always check whether spill kits are appropriate and complete.)

> "ENSURE THE SPILL KIT IS ALWAYS FULLY-STOCKED..."

When the spill has been contained and cleaned-up, the clean-up waste needs to be properly disposed of. This means placing the waste in an appropriately labelled waste bag, then contacting the relevant authority to arrange collection and disposal as hazardous waste.

Lastly, as mentioned above, restock your spill kit as soon as possible. Lightning doesn't strike twice in the same place, but spills sometime do.

WHAT ARE YOU WAITING FOR?

One of the "8 Wastes" defined in Lean Manufacturing is "Waiting".

Just like resources, energy or money, time is something that can be wasted, and represents a cost that can be reduced – as long as you follow Best Practice, and use the right equipment.

Mandy Bickle
UK Channel Development Manager

A poorly-designed production area can increase waiting, as it means operators have further to walk to fetch tools or components. While they're walking round the factory, a machine will be waiting for maintenance, or a production line waiting to restart. The problem is made even worse – and the waiting time increased – if the operator arrives at the location to discover the tool missing.

These may seem like separate problems, but there is a single solution. Rationalising the workspace and eliminating the problem of missing tools can all be achieved through the use of a Bott workstation incorporating Perfo overlays – otherwise known as "shadowboards."

Workstations that work

A workstation that brings together everything that's needed, all in one place, is clearly going to reduce time wasted in waiting, walking, and wondering where tools have got to.

Tailored and configured to optimise efficiency, a Bott workstation can incorporate safe, secure and efficient storage for whatever tools and components – specialist or otherwise – are needed for tasks performed in that area. Everything is readily to hand, easily accessible and – because of the clever shadowboard system – in the right place.

> "RATIONALISING THE WORKSPACE AND ELIMINATING THE PROBLEM OF MISSING TOOLS..."

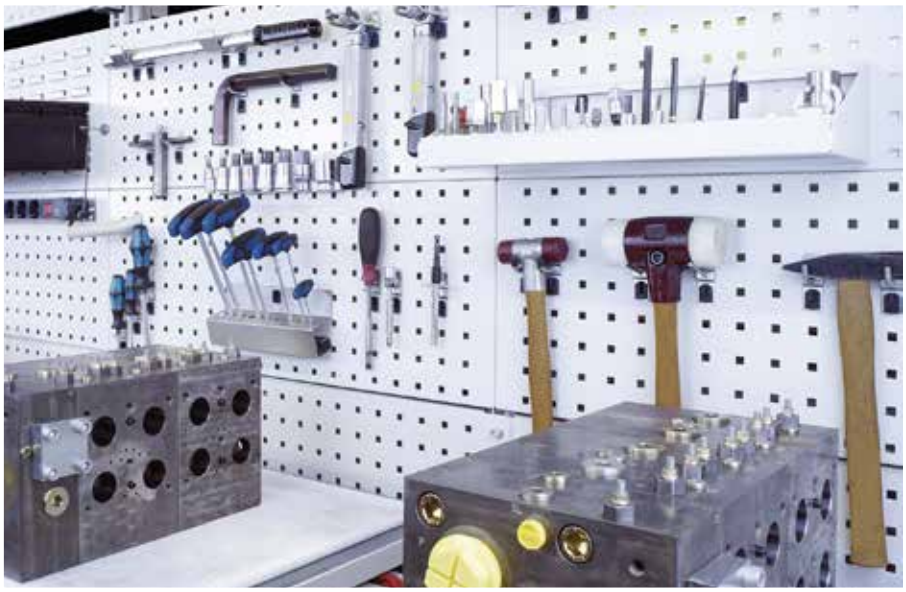
That's not only about convenience, but safety and even energy-saving too.

Reducing risk

If a well-designed workspace helping to save energy sounds unlikely, consider this.

An ineffective layout is likely to take up more space than it really needs. That means more heating or cooling to keep it at a comfortable temperature, and more lighting to make it a suitable working environment. All of those use energy, and – if the workspace is bigger than it needs to be – use more energy than they should.

Meanwhile, increased risk arises from operators having to walk around your factory to find tools or components. The more they move around, the more they are at risk of encountering hazards such as trips or slips. By having everything they need close to hand at their workstation, that's much less likely to happen.



And getting to a storage space only to find a tool is missing isn't just frustrating, inefficient and a waste of time. It also means that somewhere out there in the plant is a tool that's been left behind.

Is it inside a machine and ready to cause damage as soon as the equipment is powered-up? Is it close to a machine, poised to fall in at the slightest hint of vibration – causing problems and bringing production to a halt? Even if it's simply been left somewhere safe and then forgotten, it means a new tool has to be acquired, which wastes more time and costs money too.

> "REDUCE TIME WASTED IN WAITING, WALKING, AND WONDERING WHERE TOOLS HAVE GOT TO..."

Everything in its place

A modular storage system from Bott can be tailored to suit every individual workspace. The Perfo panels with overlays (shadowboards) can be fitted to the backs of benches, to racks or trolleys, cupboard doors and fitted directly to walls – anywhere that's convenient and makes tools easier to access. Though it's not only tools that can be kept close at hand.

The tool hooks, power tool holders, spanner holders, boxes, shelves and parts trays available mean that almost anything that needs keeping ready for use can be safely and conveniently stored. The shadowboards also mean that if a tool hasn't been replaced after use, it's quick and easy to spot what's missing.

Available pre-configured with standard tool shapes, or for customers to create their own specialist tool shapes, shadowboards are an integral part of an efficient, tailor-made workspace. Working with your local ERIKS Service Centre, Bott can apply 40 years of UK manufacturing expertise and storage experience to create a tools and components solution for any working environment.

In fact, the company claims that they have never had a request for a storage solution for any tool, component or product that they weren't able to meet. And with a Bott Perfo fully equipped workstation, not even time gets lost.

> "CONVENIENCE, SAFETY AND EVEN ENERGY-SAVING TOO..."

REDUCING THE RISKS AND COSTS OF COMPRESSED AIR

ERIKS

Mark Stone
Product Manager
Fluid Power

IMI Precision Engineering

Matt Dixon
Marketing Manager
IMI Norgren

Compressed air is such a widely-used and simple source of power in production facilities of all kinds, it's easy to forget that it costs money and carries a safety risk.

That's why specialists in pneumatics, and experts in industrial efficiency and preventative maintenance, have been working together to create an advisory checklist, to help reduce the risks and cut the costs.

IMI Precision Engineering are the manufacturers of the IMI Norgren range of pneumatic motion and control equipment. ERIKS Fluid Power has a hugely experienced team of specialist Pneumatic Application and Maintenance Engineers, with extensive total preventative maintenance know-how. Together, these two companies have created a comprehensive advisory checklist, to help manufacturers optimise their use of compressed air.

Using the checklist during an on-site survey, ERIKS' engineers can spot issues across four key areas: safety, filtration, pressure regulation and efficiency. The survey results can then be used to support an effective total preventative maintenance programme.

"IMPURITIES ULTIMATELY LEAD TO OPERATIONAL INEFFICIENCY AND EVEN EQUIPMENT DAMAGE..."

Keeping systems safe

Compressed air is under enormous pressure. If it escapes, it can be powerful enough to cause serious injury either by itself, or by blowing particles of dirt or metal into eyes or bodies. A pressure gauge or switch can provide a timely warning of a potentially dangerous leak, so that action can be quickly taken.

Even when it's still contained within the system, compressed air in unsecured flexible hoses can cause accidents, if the hoses flail dangerously under pressure of the air moving through them.

If a leak or other incident arises, you need to be able to isolate, exhaust and lock the air supply within the immediate area. There should also be emergency stop procedures in place.

Filtration for savings

Poorly filtered compressed air can contain impurities, which ultimately lead to operational inefficiency and even equipment damage.

Water within a pneumatic system reduces efficiency, and leads to higher energy use and increased energy bills. So it's important to install Drip Leg Drains to remove water, and to ensure that all filters are replaced at least every 12 months.

This will help to maintain optimum system pressure, which in turn increases efficiency and reduces costs.

"HELPING MANUFACTURERS OPTIMISE THEIR USE OF COMPRESSED AIR..."

Maintaining perfect pressure

Pressure which is too high or too low can cause problems and inefficiency within a compressed air system.

Pressure drops reduce efficiency and cost money. Pressures which are too high, on the other hand, can present a safety risk, as the system may not be able to cope. Overly high pressures also need more energy to produce and maintain – wasting energy and money.

Tamper-proof regulators, and pressure gauges and switches for pressure monitoring, will help to ensure optimum system pressure is maintained at all times.

Inefficiency at a price

Never overlook the fact that inefficient compressed air systems don't just waste air. They waste money too.

Every system needs a compressor, and every compressor consumes energy. If the system is inefficient then the compressor will be using more energy to generate the required pressure, and costing you more than it needs to.

The most obvious cause of inefficiency is leaks, which need to be identified and rectified as quickly as possible. However inefficiency could also be built-in or "programmed in" to your system.

Oversized components require more compressed air to operate them, which uses more energy and leads to higher running costs. Matching the size of the component to the application will help to ensure optimum air and energy use.

Similarly, air pressure at the point of use which is higher than it needs to be uses energy unnecessarily. Tamper-proof regulators at each point of use can help to ensure that, whatever the overall system pressure, it is never higher than necessary for any particular application.

> "INEFFICIENCY COULD BE BUILT-IN TO YOUR SYSTEM..."

While these points provide a broad outline of potential risks, inefficiencies and cost-savings, an on-site system survey by ERIKS Fluid Power, in conjunction with IMI Norgren, is the most effective way to get the most out of your system. Compressed air will never be as free as air, but a survey may mean it costs you less than you're currently paying.


STOP!
NEED AN MRO CHEMICAL CONTROL SOLUTION?
GET READY...
...GO!

Ambersil

Kieran Neale
Marketing Manager

If you operate a production facility for food, beverages or pharmaceuticals, your production equipment gives you three problems. One: the need for maintenance and repair to keep it in optimum condition. Two: the need to minimise the risk of contamination from any MRO chemicals. Three: the need to pass BRC, supermarket or FDA audits, and to meet HACCP and HSE requirements. Ambersil can give you the green light for all of them.

A traffic-light based colour-coding system for MRO chemicals – which has been tried and tested globally for over 10 years – is now available in the UK.

Ambersil GREENLIGHT® is a simple but highly effective way to control MRO chemicals used in production zones where there is a risk of contamination. As the demand from auditors grows for more rigorous chemical control, it's a solution which gives the BRC, supermarkets and others complete confidence that the risk of MRO chemical contamination is being actively controlled.

Get in the zone!

The system is based on a simple traffic-light categorisation process for production areas and MRO products.

The first step is for the end-user to define their zones, according to the level of risk of contamination. A Red Zone is one where any product – even those not NSF (National Sanitation Foundation) registered – can be used. These will be areas where there is no risk of contamination as there is no possibility of MRO chemicals coming into contact with the product.

An Amber Zone is one where there is a higher risk of contact and contamination, and therefore where caution is required in the choice of MRO chemical(s) used. Many cleaners and degreasers fall into this category due to the official NSF registration guidance recommending an additional step after application to ensure risk reduction.

> "RISK OF MRO CHEMICAL CONTAMINATION IS ACTIVELY CONTROLLED..."

Lastly, Ambersil MRO chemicals categorised Green are safe for use in all zones, including those where there is a high risk of product contact, and therefore where all chemicals used must be 'food safe'. Typically, green coded products are NSF registered 3H and H1 lubricants that are deemed sufficiently 'safe' for intentional or incidental food contact.

Adhering to this simple colour-coding regime will ensure that only MRO chemicals safe for a particular zone are ever used there.

Colours that co-ordinate

The Ambersil GREENLIGHT® system not only offers a uniquely simple, easily understood and highly effective system for categorising and controlling MRO chemicals in production zones. It's also designed to co-ordinate seamlessly with existing chemical control systems.

The system is based on the well-known and respected NSF category codes, used in conjunction with internal risk auditors and the zones users themselves to define a catagorisation regime that suits their own production requirements. The simple colour-coded visual guide also integrates with existing HACCP infrastructures.

And with the BRC and supermarkets increasingly demanding more stringent maintenance chemical control, GREENLIGHT® provides a verifiable solution which meets their criteria and satisfies their audit checklist.

> "BASED ON THE WELL-KNOWN AND RESPECTED NSF CATEGORY CODES..."

Picture the risk

A chemical control system which relies on written instruction is harder to understand and more likely to be bypassed or ignored. However, Ambersil GREENLIGHT® uses colours for an instantly recognisable, understandable and actionable control system, which employees find easy to follow.

Ambersil MRO products are supplied together with reels of coloured stickers. These are applied to the product containers according to the end-user's zone categorisations. Meanwhile, each distinct zone will display a poster outside its entrance, colour-coded to match the MRO chemicals authorised for use in the zone.

The result is a control system uniquely tailored to each end-user's specific requirements.

The complete chemical control solution

The visual identification system which GREENLIGHT® utilises is easy for employees to work with, and simple and quick for short-term subcontractors to understand when they come on site.

> "INSTANTLY RECOGNISABLE, UNDERSTANDABLE AND ACTIONABLE..."

However, auditors and regulatory bodies need more. They demand written documentation too.

So together with a manual, posters for display outside each zone, and the stickers for colour-coding individual product containers, the Ambersil GREENLIGHT® system includes a folder for maintaining a written record of which chemicals are designated for use in which zones, to satisfy auditing and regulatory requirements.

Easy to implement and understand. Simple to use. Compliant with the demands of food, beverage and pharmaceutical product safety. Ambersil GREENLIGHT® is ready to go in your production facility. What's stopping you?

PROBLEM SOLVERS

Safety issues can arise in many different ways. From protecting water in the environment, to protecting workers in a manufacturing plant, ERIKS has the solutions to reduce the risk.

FOOD GRADE AND DRINK

Ambersil

PROBLEM

A large regional utility company uses hydraulic systems to move water control panels, waste filter gates and similar equipment. Whether in potable, fresh (untreated / environmental) or waste water systems, the oils used for the gears and hydraulics are required to be "safe" – posing little or no risk to the environment or human health should they leak.

However internal audits identified that some of the oils used did pose a risk.

SOLUTION

ERIKS' suggestion for the simplest way to ensure minimal or no contamination risk was to use "Food Grade" hydraulic and gear oils. **Ambersil "FG" bulk oils** are available in a range of viscosities, as mineral, semi-synthetic or fully synthetic formulations.

They are also offered in a range of fill sizes. In addition to providing good performance and reliability, their NSF H1 classification means they pose minimal risk to the environment and to human health. The customer could drink to that.

EASY DOES IT

Norbar Torque Tools

PROBLEM

Quality control issues at a manufacturer of heavy-duty suspensions were causing production delays and costly re-work. Ultimately the issues were traced back to improper torque control.

However, while up to 1000Nm needed to be applied for testing, a method of applying the torque was needed which didn't require the technicians to risk injury by pulling the full force.

SOLUTION

What was needed was a tool with low-energy input for a high torque output. ERIKS recommended the **Norbar HT3-1000 manual torque multiplier**, which works with a conventional torque wrench to precisely multiply the torque applied. For the technicians it's almost effortless to use, yet it applies high torque in a safe and controlled manner.

Weighing just over 3kgs as a complete kit, it's compact, convenient and keeps workers free from risk of injury. Now you're torqueing.

Faced with problems in the food and beverage industries, ERIKS quickly create recipes for success. Here are two of the most recent challenges and solutions, in an easily digestible format.

KILLER CARDBOARD

PROBLEM

Corrugated cardboard cartons were producing a very fine dust in a food and beverage manufacturer's distribution centre, It was covering most of the equipment and creating an unpleasant environment. Worse still, when an oil leak occurred, investigation showed the dust had penetrated past the sealing lips on both the input and output shafts of the conveyor drive.

Replacement seals didn't stop the leaks, which were risking product contamination. An even closer look revealed the dust ingress had worn the shaft beneath the sealing lip, leading to premature seal failure and leakage.

SOLUTION

ERIKS recommended **SKF Speedi-Sleeve**: as a proven solution for worn shafts. With no need to remove and re-machine the shaft – a time-consuming, costly process – the SKF Speedi-Sleeve was fitted over the worn section of the shaft in minutes.

The result is a wear-resistant, highly finished, proprietary stainless steel surface, which creates an optimised seal counterface. Seal wear is minimised, the shaft is protected, and the dust stays where it's meant to be: outside the drive.

BOTTLING-UP NOISE

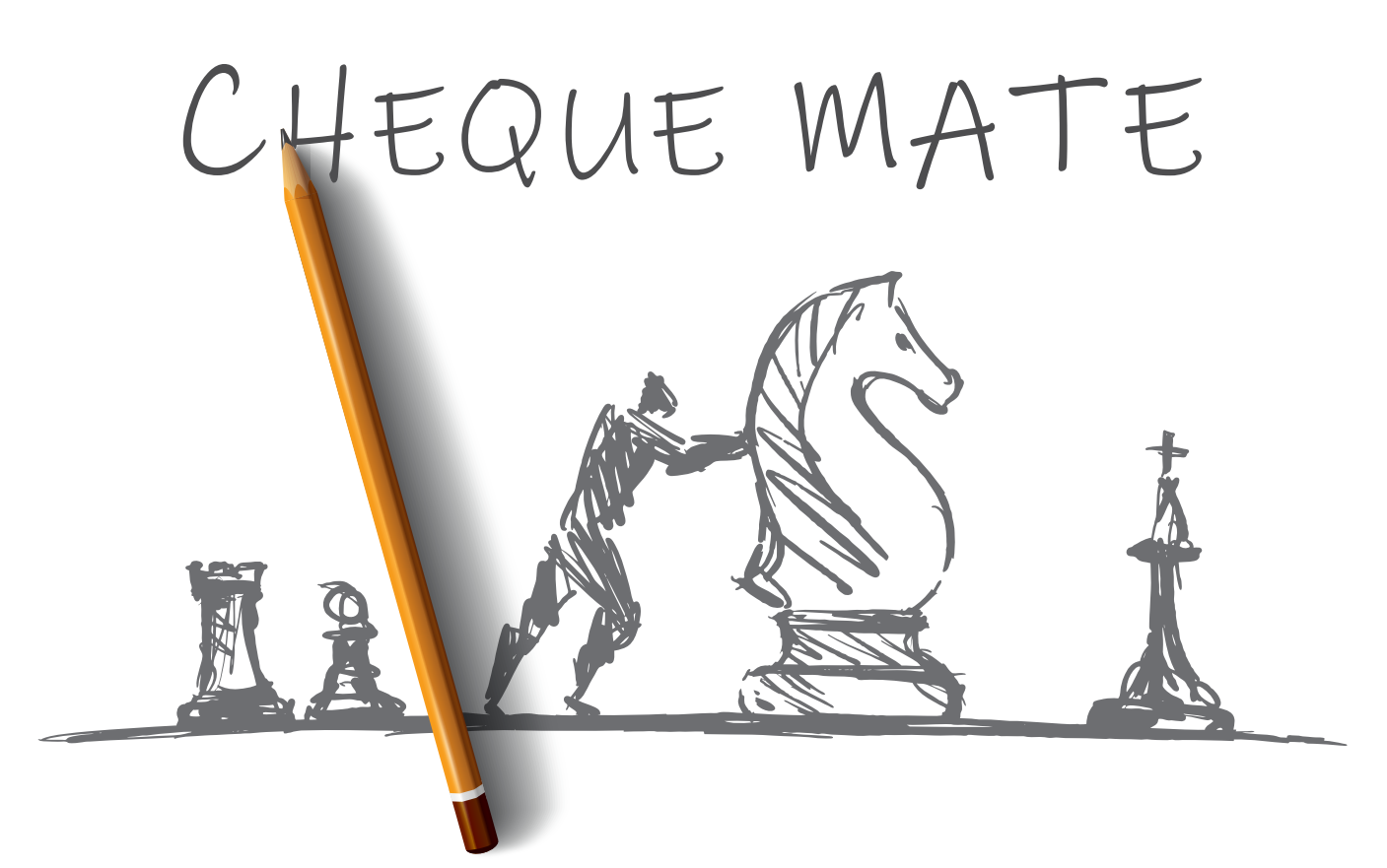
PROBLEM

High levels of noise in a large brewery were being caused by the 60,000 bottles per hour travelling along its returnable beer bottling line. The line was also inefficient in energy use, with unacceptably high levels of energy consumption.

SOLUTION

To increase the smoothness and efficiency of the conveyor, **Rexnord® 661 Series Table Top Metal Chain** – in combination with rubber-covered return rollers – was installed at the discharge section of the labelling machine, and along the section between the filler and pasteuriser.

With a lightweight stainless steel one-inch pitch – straight running and side-flexing – and reduced side-flexing gaps, the chain and rubber-covered rollers solution has reduced the noise level significantly. Also, as a result of the 25% lighter weight of the Rexnord 661 Series Table Top Metal Chain, the power consumption of the drive motors has been reduced by over 14%. Cheers!



The Government has finally come up with a Brexit negotiating position and, on the surface, it appears to be good news for manufacturers.

The broad position, outlined at the Prime Minister's country retreat at Chequers in Buckinghamshire, is as follows.

1. Zero tariffs across goods, with no quotas
2. No routine requirements for rules of origin between the UK and EU
3. Arrangements that allow the massing of current and future Free Trade Agreement (FTA) partners to preserve existing global supply chains

This last one means that EU goods will count as being local in UK exports to its FTA partners for rules of origin purposes, and vice versa.

Although nothing is yet agreed, this appears to tick a lot of boxes for supply chains across Europe, but concerns do remain.

The omission of services from the Chequers position of services is potentially troubling, not least because the relationship between goods and services is extremely complex.

Whilst a manufacturer may manufacture 'goods', the aftersales service and support, including replacement parts provision, are classed as services.

ALTHOUGH NOTHING IS YET AGREED, THIS APPEARS TO TICK A LOT OF BOXES FOR SUPPLY CHAINS ACROSS EUROPE

Aircraft engine manufacturer, Rolls Royce, for example, generates 48 per cent of its revenues from supplying OE equipment, i.e. engines, to civil aerospace, but also generates 52 per cent from aftersales services, such as spare parts and maintenance contracts.

For them, separating out goods and services is a potential headache, as it is for any manufacturer who wants to bundle a service or maintenance contract into the agreement for a new conveyor or machine tool.

I know of one UK manufacturer who exports to Europe, that has a parts hub located on the outskirts of Paris offering a 24-hour service delivery of spare parts to customers across Europe, including the UK.

Under Chequers, this hub would be classified as a service and not part of the agreement, making it liable to tariffs.

The company is seriously concerned about its ability to bring parts into the UK and service their UK customers in the event of a 'no deal' and have even looked into turning their parts hub into a bonded warehouse.

Ultimately, Chequers may well fail due to the fact that it cuts across too many EU red lines, particularly in relation to the Customs Union and the Single Market.

Meanwhile, UK manufacturing can only look and hope that our politicians can find a way around the current impasse and come up with an agreement that provides frictionless trade, in both goods and services

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- Replaces need to hold multiple gasket stocks

Cleaner – LOCTITE SF 7063
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- Ideal for use prior to adhesive bonding and sealing applications

Emergency Repair Tape – LOCTITE SI 5075
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- Seals instantly
- Stretches to three times its size

Thread Sealant Cord – LOCTITE 55
- Immediate full pressure seal
- Allows re-adjustments of fittings
- DVGW, KTW, WRAS
- Use on metal & plastic taper fittings

Thread Sealant Adhesive – LOCTITE 542
- Ideal for fine threads as used in hydraulic, pneumatic & general fittings
- 100% seal
- Ideal for metal parallel & taper fittings

Thread Sealant Silicone – LOCTITE SI 5331
- Ideal for use on threaded plastic or plastic/metal fittings carrying hot or cold water

Leak Detector Spray – LOCTITE SF 7100
- Produces bubbles at leakages
- For all gases and gas mixtures except oxygen
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Henkel

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