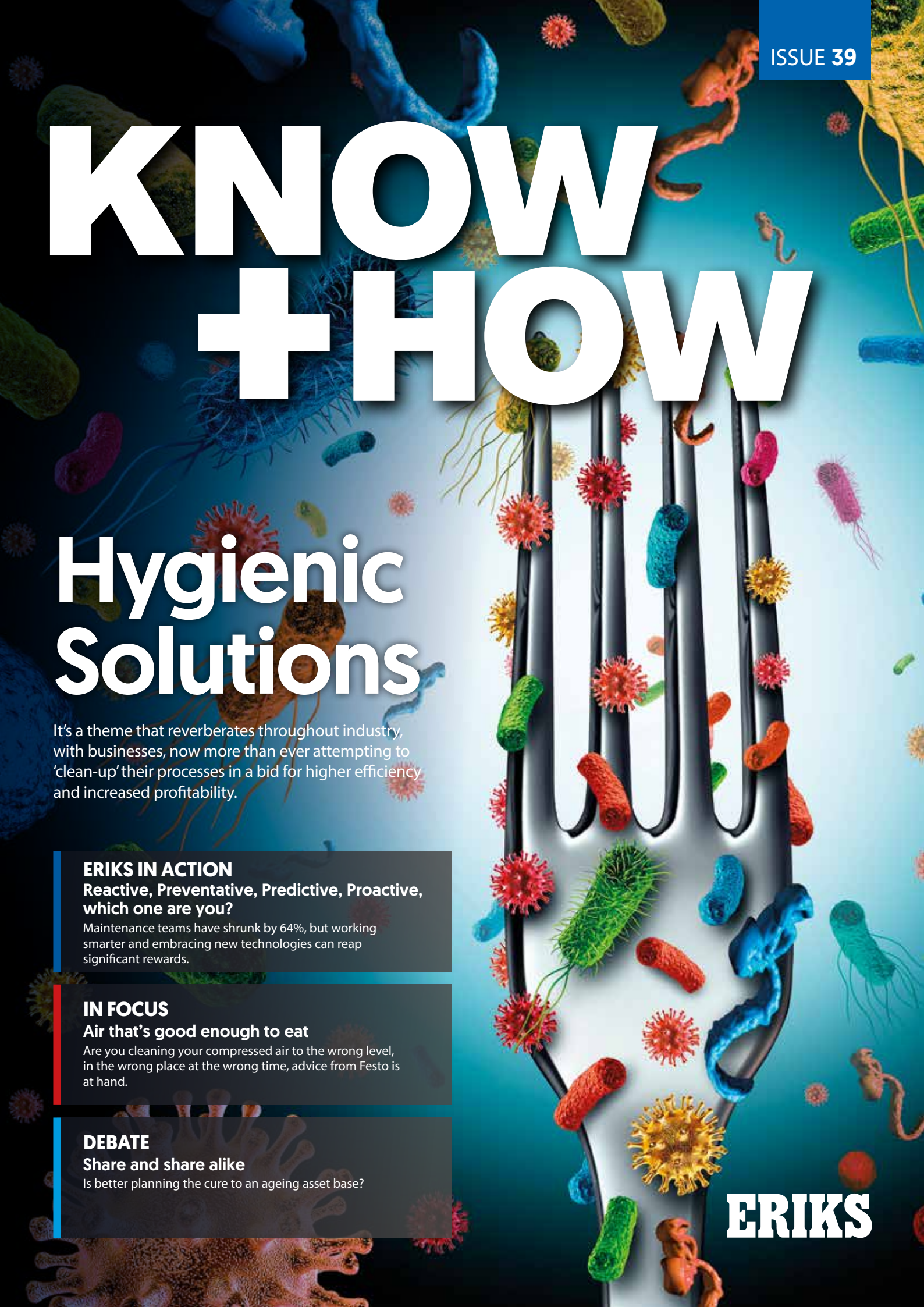
ISSUE 39

KNOW +HOW

Hygienic Solutions

It's a theme that reverberates throughout industry, with businesses, now more than ever attempting to 'clean-up' their processes in a bid for higher efficiency and increased profitability.



ERIKS IN ACTION
Reactive, Preventative, Predictive, Proactive, which one are you?
Maintenance teams have shrunk by 64%, but working smarter and embracing new technologies can reap significant rewards.

IN FOCUS
Air that's good enough to eat
Are you cleaning your compressed air to the wrong level, in the wrong place at the wrong time, advice from Festo is at hand.

DEBATE
Share and share alike
Is better planning the cure to an ageing asset base?

ERIKS

Rethinking food safety

SKF Food Line ball bearing units - Blue Range: Proactive food safety

For food producers, hygiene and proactive food safety take top priority in asset design. However, bearings can be a potential source of serious food contamination.

SKF, with microbiology experts from RISE (Research Institutes of Sweden), have discovered that bacterial contamination can build up inside bearing units during operation, and even during hygienic cleaning.

If bacteria can get in, they can also get out! The answer is a hygienically-designed, fully sealed bearing unit.

The new SKF Food Line ball bearing units - Blue Range is a relubrication-free solution that supports your proactive food safety processes. Sealed from both sides and filled with allergen-free grease, they allow you to actively reduce food safety risks by combining hygienic design, relubrication-free technology, corrosion resistance and food grade components. Coming from SKF, they also provide outstanding bearing performance!

Request your NEW 124-page catalogue today!

Call: 01582 496662 or visit:

Food safety risks: https://ter.li/video

The solution: https://ter.li/catalogue

Follow us on:

The festive season has been and gone, the tidying up is done (thankfully), you've made your resolutions (hoping to stick to them this time) and you're probably sick and tired of hearing people say, 'new year, new me.' That means it must be January.

Richard Ludlam
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West Midlands, B62 8WG

So Happy New Year! And here's to a prosperous and efficient 2020.

But even though it's a new year, and 2019 is quickly becoming a distant memory, the important matters in industry remain unchanged.

In the year's first edition of Know+How, we're tackling the subject of hygiene. It's a theme that's reverberates throughout industry, with businesses, now more than ever, attempting to 'clean up' their processes in a bid for higher efficiency and profitability.

In Focus takes a closer look at the food industry, and how ERIKS specialists assisted two companies in keeping their machinery clean. Firstly, identifying a failing seal in a crumpet factory which was leading to expensive failures, and secondly, changing the motors on a poultry farm which resulted in improved performance and reduced maintenance costs.

For Making Industry Work Better, we've adopted a health and safety standpoint, discussing the similarities of shoes and car tyres, a change in legislation for the testing conditions of footwear tread, and how a brand-new testing method has proven to produce superior results.

ERIKS in Action sees us offer best practice advice on V-belts, what differentiates a good belt from a bad one, and what the future brings for belting technologies.

Finally, for the debate piece, we raise the question, is planning the cure to maintaining an ageing asset base? We highlight areas of concern for failing assets, and what steps should be taken to ensure that you're prepared for any shortcomings in your plant.

We hope that you enjoy 2020's first issue of Know+How, and we'd love to hear your opinions on any of the topics highlighted. If you have any stories on how you've helped make industry better, please don't hesitate to contact us via email, and remember to check out our website for even more news, views and blogs from ERIKS.

In this issue

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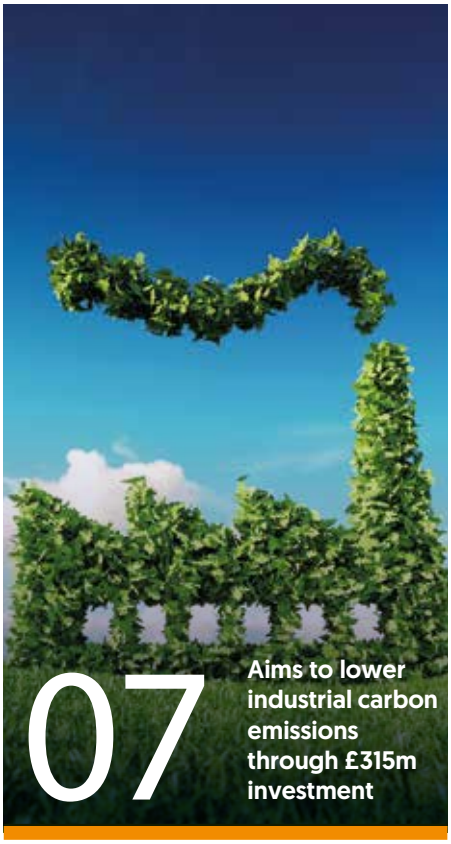
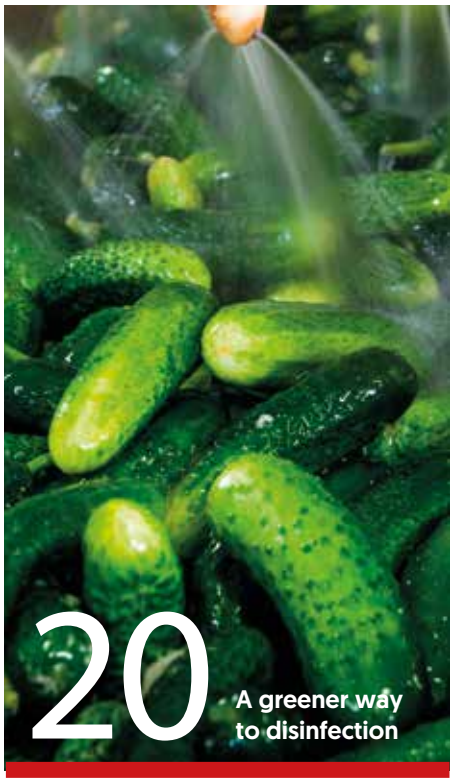
Technology Update

ERIKS in Action

In Focus





KNOW +HOW

Making Industry Work Better

Debate

Three zero carbon projects awarded funding

Funding via the Advanced Propulsion Centre (APC) has been secured and awarded to three UK-based automotive projects, focused on driving down carbon emissions.

Contributions are projected to reach a total of around £50m, with the collaborative efforts of each project aiming to ensure ideas are fully developed yet brought to market quickly.

The successful projects are:

- CompETe by Jaguar Land Rover – developing an electric bus drivetrain integrating heating, cooling and ventilation to reduce energy consumption
- Project Esther by Intelligent Energy – establish a fuel-cell production capability to deliver zero emission solutions for passenger buses and heavy-duty transport
- CELEB 2 by Equipmake – a lightweight electric drive unit for new vehicles that offers increased range, power and torque

The funding has also created and safeguarded approximately 4,000 jobs in the UK, arming employees with skills in research, development and manufacturing

More data, more technology, more risk

Industry 4.0 is without doubt creating more and more opportunities for manufacturers to improve productivity and profitability. But with more data comes bigger risks, and the 'Going Fourth' study from law firm Irwin Mitchell aims to raise awareness on such technologies and help companies understand how collecting and having access to data can increase their risk of breaking the law.

Digital transformation is changing how we operate and there are huge risks and several legal issues to be aware of. Dorrien Peters, a partner at Irwin Mitchell, commented: "Machines in factories are increasingly being connected to and share their data with an enterprise system. Software is being developed to interpret and utilise this data and, as a result, companies have never had so much accurate information".

However, with volume comes risk. There are great opportunities for cyber criminals to compromise data. The aim of this report is to highlight the opportunities and debunk the myths about the shift to 'Industry 4.0' by clarifying what it means from the level of data use and data exposure.

Surveys reveal plans for future investment

Investment in new technologies such as quantum computing, blockchain and artificial intelligence (AI) is set to significantly rise in the UK according to recent surveys.

Investment in quantum computing is to nearly triple from 11% to 32% in the next five years, while blockchain and other distributed ledger technologies will approximately double (16% to 35%). Based on respondents, a third are also looking to invest in artificial intelligence.

Felicity Burch, CBI Director of Digital and Innovation, commented: "AI, blockchain and quantum computing are all next on the investment horizon. These technologies will be used not only to improve customer experience and reduce costs, but open up new frontiers of innovation."

Zahra Bahrololoumi of Accenture Technology UK&I said: ***"The rate of investment in emerging technologies is set to accelerate even further over the coming years as technologies such as AI and blockchain start to become more mainstream."***

Multidisciplinary is the future

A recent research paper, backed by the Institution of Mechanical Engineers, has suggested that engineers will need to become more 'technically fluent' and multidisciplinary in order to develop a sustainable career in the field.

The purpose of the research was to investigate the trends and drivers for engineers' continuing professional development (CPD) and compare them to the quality of higher education training received in the UK.

It was noted that there is a clear imbalance between what is delivered at Masters level to what the industry actually requires, with several of the participants declaring that they completed university without the relevant skills, and that their qualifications didn't reflect the current changing state of industry.

Future skills gaps were also identified, such as coding, big data, AI and virtual and augmented reality, with half of respondents reporting that their employees weren't prepared for the impacts of new technologies and struggling to comprehend the effects of Industry 4.0.

In order to develop skills alongside those of new technologies, universities will need to evolve or risk becoming irrelevant providers of training, and industry will source alternatives to meets its CPD provisions.

Aims to lower industrial carbon emissions through £315m investment

Recent investment from the UK Government has outlined the clear objectives to reduce industrial greenhouse gas emissions, helping to reach the net zero target set for 2050.

As part of the £315m strategy, plans to set a minimum energy efficiency standard of EPC (Energy Performance Certificate) Band B and improve the energy performance of rented commercial buildings are in place, and businesses could benefit with estimated savings of up to £1bn a year on energy bills by 2030.
Companies with high power usage will receive help to reduce their energy bills and carbon emissions, with The Industrial Energy Transformation Fund investing in new efficiency measures, which aim to decrease emissions by 2 million tonnes between 2028 and 2032 – the equivalent of taking approximately 200,00 vehicles off the road, every year.

Kwasi Kwarteng, Business, Energy and Clean Growth Minister commented: ***"The UK is already cutting emissions faster than any other major economy and we're the first to legislate to end our contribution to climate change entirely. Eliminating emissions from industry is key to achieving this, but doing so does not have to mean compromising our business success. That's why we're bolstering our investment in clean growth."***

A new generation of diaphragm pumps

Extensive testing has suggested that a large amount of energy required in a pump was to overcome the resistance in the pump and used to fill dead space in the air chambers. While another major issue is pumps stalling when turned down to lower air pressures to save energy or being pumped against a close valve.

When measuring the performance of Tapflo's new TC Series against conventional AODD pumps, up to 70% in energy savings can be achieved.

Utilising patented LEAP® (Low Energy Air Pump) Technology, the minimum operating air pressure is reduced by reducing internal losses and friction found in traditional AODD pumps.

The TC Series is able to start pumping at 0.3 bar with no stalling, where others simply failed to even start.

TC Intelligent pumps can be retrofitted to any existing Tapflo AODD pump, and offer an improved lifespan using an air valve over rubber seal technology, while maintenance times are also improved as the main air valve can be changed in under two minutes without the removal of the pump from the process line.

Other features and benefits include:

- Noise reduction
- Electrical feedback for external monitoring
- Available in plastic, metal and sanitary series
- Dry running
- Batch dispensing
- Dead heading

Safety first: Ambersil Bioweld non-solvent anti-spatter

The recent reclassification of mild steel/steel weld fumes by the HSEi has highlighted the risks associated with welding fumes, placing added responsibility on employers to provide adequate local exhaust ventilation (LEV).

Unlike traditional solvent-based anti-spatters that use Methylene Chlorine or Dichloromethane, which is classified under GHP/CLP as "H351: Suspected of causing cancer" and "Carcinogenicity, category 2," Bioweld from Ambersil is an advanced water-based anti-spatter that protects your equipment and workpiece with the high level of performance of previous products, but without any of the associated health hazards.

Ideal for various industries such as automotive, construction and agriculture, Bioweld is completely odourless, non-flammable and has a white Safety Data Sheet (SDS), meaning there are no hazard symbols, reducing operator risk significantly.

The fine spray pattern ensures total control and economical coverage, and it doesn't interfere with post-weld painting, plating or coating thanks to its unique formula.

Combining safety with more, safety

Contamination can have serious consequences on machinery, humans and your reputation. To help reduce such risks, Martor has developed the MDP range of safety knives.

Manufactured using metal detectable additives in specialist polymer compounds, Martor's range of MDP knives are food safe, non-toxic and designed to reduce Foreign Object Debris (FOD) risks.

Carrying all the same properties as non-MDP models, each of the knives in the range is equipped with the proven safety technology associated with classic Martor knives, therefore guaranteeing the safety of users and keeping injuries to a minimum.

Suitable for cutting the same materials and surfaces as before, the MDP range is made from high-quality plastic and remains unpainted to avoid any unnecessary flaking in the production process. But if fragments from one of the knives enters the production line, it is easily detected and ejected.

MDP test cards are also available, to ensure your metal detectors can calibrate with the range and ensure maximum detectability.

The most powerful Bosch cordless yet

Bosch has expanded its 18V cordless range by introducing the innovative BITURBO models, carrying more power than ever before seen with battery-operated equipment.

Utilising a specially developed brushless motor, advanced electronics and Bosch ProCORE18V battery packs, the new range boasts the equivalent performance of corded tools rated between 1000 and 1800W.

Opting for a saw, rotary hammer or angle grinder with one compact 8 or 12Ah capacity ProCORE18V battery, hands users the capacity of a competitor machine requiring two batteries. This not only gives users more power, but reduces tool weight and size, therefore providing easier handling and transportation.

Part of the Bosch Professional 18V system, each of the models is compatible and interchangeable with all other products from the Bosch 18V range, and all but one can be fitted with a Bosch connectivity module. This arms users with remote adjustment and data transmission, with the interface keeping users informed of the status of the tool, such as battery charge levels and temperature.

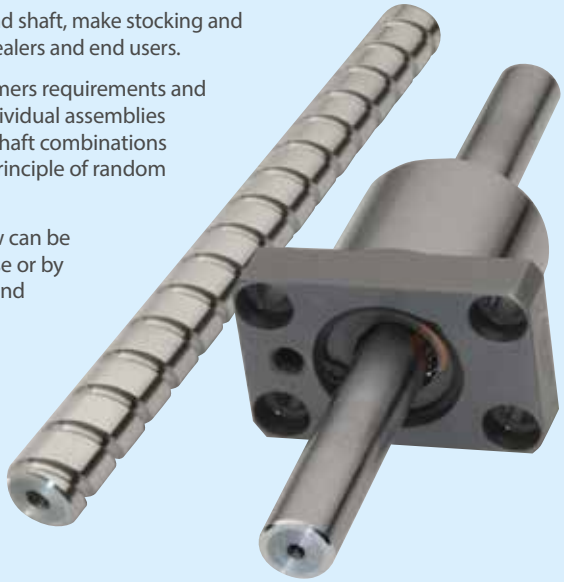
Ball screws with greater flexibility and availability

NSK's new series of ball screws, with freely combined nut and shaft, make stocking and purchasing high-quality ball screws much easier for both dealers and end users.

Previously, ball screws were designed specifically to customers requirements and adapted to the task. Manufacturers would then supply individual assemblies that are factory matched. Now, individually matched nut-shaft combinations aren't required, and both can be interchanged using the principle of random matching.

Users now have the advantage that the required ball screw can be ordered from stock and cut to the required length, in-house or by an authorised NSK dealer. This provides greater flexibility and availability of ball screws of individual dimensions.

Available in accuracy class 7, the new series comes in shaft diameters of 15 to 32mm, with pitches of 5 to 20mm. Meeting the requirements of DIN 69051 (ISO 3408), they are ideal for applications that use pick-and-place systems, automated transfer units, handling and internal transport.



Want fast, accurate, repeatable blending or mixing?

Get in line

Peter Brown
Liquid Process Development Manager
ERIKS

Whatever recipe you are blending, mixing or formulating – food, beverage or pharmaceutical – there's one ingredient that can put the whole process at risk. A human. So introducing an automated in-line or batch blending system to the mix will increase the efficiency, productivity and repeatability of your process. And if it's an ERIKS' system it can do even more.

Humans are fallible, inaccurate and slow. In production processes which demand repeatability, accuracy and speed, that makes them a liability.

The solution is an automated batch or in-line blending or mixing system, for fast, accurate dosing, time after time. All at a speed that significantly accelerates productivity.

From a single production line upwards, ERIKS Flow Control can design, install and maintain a cost-effective system for your application. And because ERIKS is a major purchaser of high-quality brand-name system components, it will be built-to-order, but at a close to off-the-shelf price.

A whole batch of problems

Moving from a batch production process to an in-line system delivers a wide range of benefits. That's because manually-operated batch blending and mixing systems have an inherent set of problems.

ERIKS is currently undertaking design and installation of a new in-line system for a manufacturer of flavoured and infused oils. A number of issues with their current batch system should be resolved as a result.

> "Fast, accurate dosing, time after time"

The customer produces small runs of speciality oils, currently hand-blended to the required ratios and specifications, in 1000kg batches stored in intermediate bulk containers (IBCs). Product demand is high, and there is a large number of flavour variants, so the customer processes approximately 2,500 IBCs annually – each one taking around an hour to blend.

Once an IBC has been blended, it has to be moved manually from the bulk oils dispatch point to the filler point on the production line. This involves manual handling on a trolley, over a distance of around 150m.

Moving IBCs is a tipping and manual handling safety risk, and in the confined space around the production line poses the additional risk of machinery damage. The operation also takes the depalletiser operator away from his machine for at least 10 minutes at every IBC change. Since one of the lines involved can process a full IBC every 90 minutes, this is a significant amount of the operator's time which could be better used.

One final inefficiency is the 12 litres of oil lost from production at every oil change.

A tasty mix of benefits

As part of the Project Definition presented to the customer, ERIKS itemised the main benefits the in-line system will achieve, together with the associated cost savings.

These include a reduction in:

- Blending requirements for the bulk oils department – saving 37.5 man hours per week, and £20,088p.a.
- Lost oil, from 12l to 4l per oil change. With 10 flavoured oil changes required every 4 weeks, at an average price of £6.25 per litre, that amounts to a saving of £6,500p.a.
- Stock-holding of semi-finished goods, by approximately £110,000 – saving £3,000 interest
- Palecon changes, from 514p.a. to 128p.a. – resulting in a downtime reduction from 37hrs. to 9hrs. and a labour cost saving of £798p.a.
- Waste handling, by 50%, resulting in a £3,000p.a. saving

In addition, the customer will see a reduction in their bulk oils stockholding of 62 IBCs, and an increase in OEE of 2% by removing the need for the depalletiser operator to move IBCs to the line.

Last but not least, automating the blending process and metering the infusion of flavours into the main oil line eliminates the risk of unwanted variations in the blend.

Quality ingredients

It doesn't matter how unusual or complex your mixing or blending requirement is. ERIKS can make it more efficient, accurate and cost-effective.

The specialist knowledge to design and build an effective in-line or batch system is only the start. To ensure reliability, the system will be engineered with quality components from well-known manufacturers. These include Xylem for pumps and Prominent for dosing systems, WEG for electric motors, Econ for valves and proportional valves, and Fenner for control systems.

> "Eliminates the risk of unwanted variations"

And ERIKS' comprehensive Flow Control systems know-how, together with expertise in pumps, valves, flow meters, mixing vessels and weighing and dosing equipment, means you can source a complete system from one supplier. A supplier who also has the buying power to keep component costs down.

This all-in-one offering even extends to the system itself: fully assembled and mounted on a compact stainless steel framework skid – together with the control panel, pipework, wiring, and inlet and outlet pipework connections – ready for delivery and "plug and play" installation.

ERIKS Flow Control engineers can also return regularly to check the system is operating within your required parameters, and to recalibrate, service and maintain as necessary.

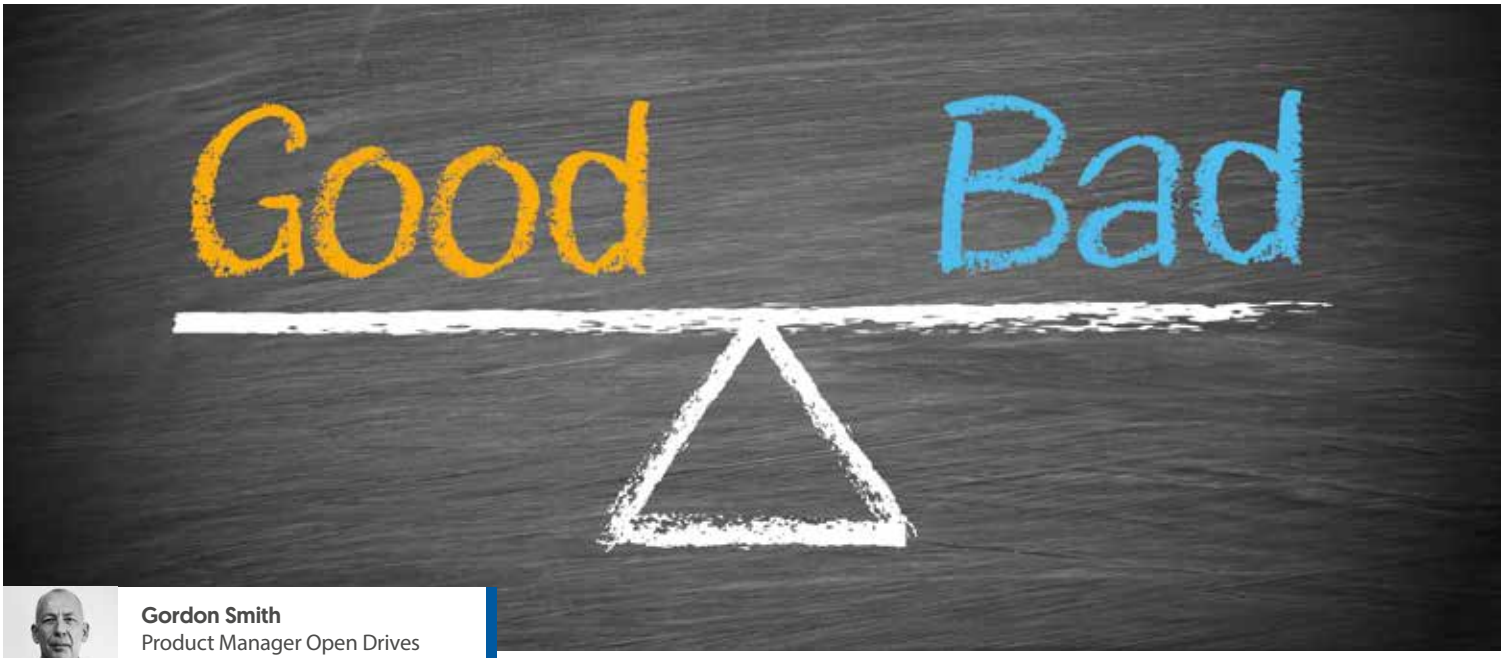
In fact, with whole-life support from ERIKS' dedicated Flow Control Technology Centre, the service and maintenance can be just as fast, effective, repeatable and reliable as your blending and mixing itself.

> "Plug and play" installation"

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)



Gordon Smith
Product Manager Open Drives
ERIKS

Good Belt V Bad Belt: The Truth

In manufacturing facilities, across the world, we've seen belts in all shapes and sizes, but contrary to some beliefs, not all belts are the same. There are several different factors that determine the quality of your V-belts.

Material strength

Material plays arguably the most important role in ensuring the quality and performance of a V-belt. The tensile cord running through the belt handles the lion's share of the duty, so physical properties are vital.

A rubber belt with a polyester cord, and one with aramid, may look the same from the exterior, but their power ratings are totally different. Therefore, dependant on the type of cord used – aramid, fibre glass, polyester – quality, length stability, power and performance will inevitably vary. The stronger the cord, raw materials and build, the better the overall performance. The cheaper the cord, the higher possibility of bowing under tension.

The amount of primary material used should also be factored in. A high-performance belt manufactured from 40% EPDM, for example, will outperform one of 10%, with many imported versions made up of filler materials. Belts with lower EPDM content will deteriorate quicker, significantly reducing their lifecycle.

Belts such as the Fenner® Quattro Plus TW (twin wrapped) have better length stability due to more highly developed tension cord technology, and improved protection against abrasion, utilising a state-of-the-art wrapped chloroprene rubber construction with a 2-ply asymmetrical weave outer jacket.

Storage conditions

Regardless of the quality of the belt, storage conditions can have a significant bearing on their performance, and due diligence should be taken to ensure the correct conditions are met. For example, if storage temperatures exceed 30°C, service levels could be reduced, and under no circumstances should you store your V-belts in conditions above 46°C.

To ensure premium storage conditions, try hanging your V-belts on pegs or crescent-shaped saddles to prevent weight distribution leading to distortion.

Once out of storage, installation and maintenance processes must be undertaken correctly, or the performance and lifecycle of your belt will be also reduced.

Consistency is key

Traditionally, belt manufacture is a very manual process, and the curing process of rubber hasn't changed significantly since its invention, therefore consistency is of a very high priority.

We automatically assume that if our belts come from the same manufacturer and factory, then they all share the same properties. But that's not strictly true.

Overall quality is dependent on the experience and precision of the builder, quality of moulds, and technology used in the process. With everything factored in, the only true way of guaranteeing the best quality belts is by choosing a reputable manufacturer and selecting a belt that is suitable for your application.

The future is 'smart belts'

Companies like ContiTech are now looking into the possibilities of improving and reducing maintenance processes by introducing new belting technologies utilising sensors that can measure key states including temperature, elongation and corrosion. Data will then be sent to a computer, aiding in a transition from reactive to preventative maintenance.

Are you getting the most out of your belts? Check out the latest ERIKS instructional video on how to assess your pulleys for wear and damage.

Visit www.vimeo.com/eriksuk

Reactive. Preventative. Predictive. Proactive.

Which one are you?

Stewart Royle
Regional Engineering Manager
ERIKS

How do you deal with the risk of a heart attack? Hope there's an ambulance nearby? Or eat fewer chips and join a gym? What about your car? Do you keep the wipers in good condition and check they're working? Or do you just hope it doesn't rain? Most people make the sensible choice about their health and their car. But when it comes to their rotating equipment, some are dangerous risk takers.

Lack of investment throughout UK industry has left almost three-quarters of factories using equipment that is over 10 years old. At the same time, maintenance teams who keep it running along have shrunk by 64%. And even if companies do invest in new machinery, its increasing complexity often uses new technologies that requires additional training and skills, stretching maintenance teams further.

> "Predictive maintenance lets you work smarter"

This combination of factors can lead to asset failure, breakdown, and unscheduled downtime. Which can lead to more than just a loss of production.

A leading performance improvement company survey identified the common characteristics of worst-performing companies. They were those spending four times more on maintenance than the best-performing, but still suffering 15% more downtime. But it's not only the business that's at risk. Further research in 2018 by Reliable Manufacturing revealed that during breakdowns, those maintenance teams are nine times more likely to have an accident than when they're undertaking scheduled maintenance.

The problems are worrying. But there are solutions for your rotating equipment that are just as easy, and just as effective, changing your wiper blades.

Which one is right for your particular motors and gearboxes depends how far you've already gone on your maintenance journey.

A vicious circle

The working life of an electric motor should be 15 years. If you find that hard to believe based on your own experience, you won't be the only one. Because 80% of motors never achieve it.

Reasons for shorter service life vary: from poor maintenance (51%), to overloading (21%), incorrect specification (16%), and poor installation or alignment (12%). The results however are always the same. Frequent breakdowns, unscheduled maintenance, increased downtime and loss of uptime.

When budgets and maintenance teams shrink, run-to-fail can quickly become a policy by default. What completes the vicious circle is a reliance on reactive maintenance at the lowest possible cost. The two scenarios outlined in the box-out, based on a real-life customer experience, demonstrate the problem and the solution one ERIKS customer has adopted.

React, Prevent, Predict

Taking advantage of ERIKS' facilities, capabilities and know-how is a first step towards minimising your downtime and optimising the efficiency and cost-effectiveness of your rotating equipment. But essentially, you've only chosen a better ambulance service. Prevention is a more effective step still.

Whilst ERIKS' engineering expertise helps resolve the root cause of failures during the repair process and identifies efficiency opportunities, which can move you towards preventing repeating asset failures.

These efficiencies don't have to be major investments to deliver sizeable returns. For example, an ERIKS customer's maintenance engineers were manually greasing all rotating equipment. There was no greasing schedule. Different engineers applied different amounts. And accessing the grease points involved climbing over safety fencing, exposing personnel to risk of injury.

> "4x more on maintenance, but 15% more downtime Run-to-fail becomes a policy by default"

ERIKS costed the installation of automatic greasers, calculated the savings on engineers' time, and helped the Production Manager present a strong business case for the investment. Now the assets are greased at the optimum level – a valuable preventative measure – and the engineers use their time more effectively to increase reliability and uptime.

They're now free to work towards the next step: moving from prevention to prediction.

> "Maintenance teams have shrunk by 64%"

Foresight and insight

Predictive maintenance lets you work smarter.

Using condition-based monitoring gives you the advanced warning (foresight) and what the potential issue is (insight) so that you can create a tailored maintenance schedule, and take real control of how your assets are looked after.

If you carry out maintenance to the manufacturer's schedule, you could be replacing components too often, or too late. But tailor your maintenance to your specific operating conditions, working environment, and knowledge of probable failure modes, and you can optimise your planned maintenance schedule, minimise downtime, increase efficiency and reduce Total Cost of Ownership.

However, you should choose your Condition Monitoring service carefully. Some simply present you with a list of problems they've identified. ERIKS can take ownership of the issues identified working with you to implement approved cost saving solutions.

Engineering your downtime away

As your need for reactive maintenance decreases, and you adopt a balanced mix of preventative and predictive maintenance measures, you – and your budget holders – will start to notice the difference.

There'll be less unscheduled downtime. Maintenance costs will fall because you're not paying a premium for emergency responses for critical failures. You'll even start to see some incremental benefits as your engineers spend time identifying and implementing efficiency improvements.

Now you can take the final step on your maintenance journey, and start to think proactively.

> "Motor and gearbox failures are not an inevitable part of your operations"

Technical know-how – in-house or from experts like ERIKS – can help you to engineer-in reliability and operational efficiency. ERIKS can help you to establish an asset database and identify critical parts. (Almost half of factories are unaware of the lead time on spares for critical equipment. Over 70% hold no spares. ERIKS holds £22m of stock for next-day delivery.)

Ultimately, you'll see motor and gearbox failures not as an inevitable part of your operations, but as something you can anticipate – and minimise.

ERIKS
SPECIALIST REPAIR FACILITY

When oil leaks from a gearbox, the customer contacts ERIKS. The asset is collected and taken to one of 19 specialist repair locations nationwide. Working to documented repair processes and industry best practice, ERIKS' highly-skilled engineers dismantle the gearbox for inspection and identification of the root cause. All bearings and seals are automatically replaced.

The repair is audited, and all parts used are fully traceable. The gearbox is reassembled, tested, and returned in good-as-new condition, guaranteed. MTBF is greatly extended, TCO reduced, and efficiency and productivity increased.

The ERIKS team will also evaluate the cost/benefit of a replacement or upgrade depending on your circumstances, they'll provide costings for repair and replacement/upgrade options, so you can make an informed decision which could save repeat failures and repair costs in the long-run.

Can you be sure you are getting the same service?

David Oliver
Channel and Platform Manager
SKF

How clean are your bearings?

There's one thing we expect of the food industry. Faultless hygiene. And rightly so too. But despite the gleaming surfaces we see on the exterior of our processing equipment, it's the concealed bearings and their housings that often pose major issues.

But ironically, the washdown procedures that we implement to ensure our equipment is squeaky clean cause further issues, with water penetrating the seals, breaking down and emulsifying the grease, resulting in poor reliability and potential contamination.

To counteract such problems, SKF have re-engineered the standard mounted bearing, designing the most hygienically stable units on the market, reducing risk to the environment and increasing cost-efficiency in the process.

Contamination problems

During washdown processes, food residues and bacteria can spread, potentially landing on bearing housings and creeping into gaps – no matter how small. The high-pressure sprays can then help waterborne contamination spread even further.

The moist environment provides shelter for the breeding of micro-organisms, while progressively accumulating allergens and other contaminants. The subsequent pressure washing flushes them out, but only to other areas. Jet sprays can then lift contamination into the air, producing aerosols, which later settle and infect more surfaces. And that's just on the outside.

The caustics and detergents entering the bearing cavities cause corrosion, and the grease breakdown leads to the requirement of more frequent lubricant replenishment. The relubrication process then purges the old spent grease out of the housing, increasing the potential of contamination with excess grease attaching to cloths and gloves used in the dry-cleaning process.

> "Six new patent submissions and three design protections"

Bearing protection. Patented

Underlined with six new patented submissions and three design protections, the SKF Food Line – Blue Range can be the answer to many of these problems.

Relubrication-free, each unit is filled with purpose-designed, food-grade, allergen-free grease that is contained safely and protected by effective sealing technology.

> "A completely new approach to bearing sealing"

Manufactured from inert, chemical-resistant hydrophobic polypropylene (PP), with long glass fibre for additional strength, they're designed with hygienic smooth surfaces, purposely shaped for self-draining. And if damaged, the distinctive food-grade blue colour is easy to detect optically.

An innovative rubber base seal is injected into the housing and co-moulded to fill the gaps between the structure and machine frame. A stop limiter around the housing bushes allows optimal bolt tightening torque, while maintaining a hygienic seal.

> “Material wastage is reduced”

A blue PP anchoring and sealing end cover are securely twist-locked into place, with indicator dots to signify correct positioning. The back seal, also moulded from blue PP, prevents the entry of contaminants into the bearing unit via the shaft. It provides static sealing against the housing and dynamic, and rotary sealing against the shaft, with no spring components to accidentally enter the foodstuffs.

> “Resulting in a 30% water saving”

Then there's the 'Gutter Concept.' A completely new approach to bearing sealing. Accepting that caustics and detergents contained in industrial cleaning products are specifically designed to pass through barriers, this solution blocks the majority but handles the remainder in a truly innovative manner.

The drops that enter via the seal's top lip are guided around the multiple gutters, away from the bearing enclosure, then exit from the opposite, bottom side of the seal.

Raising the bar in hygiene

Rigorous testing, both in-house and by third-party, against standard products have proved that the Food Line – Blue Range has made significant advancements in hygienic design. In particular, during one test by RISE (Research Institute of Sweden), sour milk that was brushed onto bearing housings was cleaned off by a typical detergent pressure wash, and even compared to SKF's own highest standards, the end cover and back seal outperformed previous tests, resulting in a 30% water saving.

A specific high-pressure wash test was developed for the end cover, bearing gutter seal and base seal incorporated into the Food Line – Blue Range, which showed no water ingress when high pressure water was applied at close distances unlike most competitors' units.

The back seal is designed to maximise sealing efficiency and in turn will generate friction. However, whilst in friction torque machine tests, more friction than standard market solutions was noted, and operating temperature remained comparable.

The 'Droplet Test' was also devised to test the grease and bearing sealing system. Across 500 hours of operation, with constant dripping of standard industry, caustic laden cleaning fluids at 30% concentration, the SKF seal was proven to contain the fluids to the outside gutters, allowing virtually no contamination into the bearing enclosure and raceways emerged almost new. Friction torque testing was also undertaken and established that the 'gutter sealing concept' had superior energy efficiency and lower operating temperatures.

Positively changing culture

Material wastage is reduced courtesy of longer-lasting, better-protected bearings, therefore fewer replacement units are required. With no relubrication or leaking grease, additional consumption of spill control and gloves is avoided.

Cleaning no longer takes up such large volumes of water, and wastewater recycling is easier. Excellent recyclability and energy recovery properties align to reduce bearing and grease consumption, lower carbon emissions, improve energy savings, and provide zero landfill. An avoidable-orientated manufacturing culture, rather than a disposal-orientated ethos, can now be positively enforced.

With these small steps and continuous savings taken together, you'd find it hard not to put forward a strong economic case for switching to SKF's hygienically designed Food Line – Blue Range.

A greener way to disinfection

Martyn Tyas
Treatment Product Specialist
xylem

The environment is the lifeblood of our planet, but it's become a pressing concern that it's not treated with the respect it rightly deserves. It's a far cry from the condition it should be in. But by making subtle changes, and adopting greener processes, the ideal world in which we seek could become a step closer.

More recent times have seen companies and corporations, large and small, pushed to reconsider their practices, taking a more proactive approach with regards to:

- Looking after the environment
- Protecting people in the workplace
- Improving their green credentials and manufacturing

And with these key points the cornerstone for decision making, time for change is upon us.

> “Move away from chemical products”

(Non) chemical reaction

Today, more and more companies have begun to, where possible, move away from harmful chemical products, such as chlorine, reverting to non-disinfection products like Ultraviolet (UV) and Ozone (O3 Tri-atomic oxygen).

Boasting a host of preferable benefits, UV – part of the electromagnetic spectrum – and Ozone, which provides a protective layer to our upper atmosphere, both products are naturally occurring, with their individual benefits typically complementing one another.

A call for change

Regulation and legislation are key drivers in the need for change to reduce impact on the environment, particularly in protecting our water courses and wastewater drainage systems. Many of our coastal waters are environmentally sensitive due to the diverse range of aquatic life, therefore strict guidelines are stipulated now more than ever.

The Urban Wastewater Directive has also made it compulsory to treat water beyond the point where it can damage the sewerage infrastructure, personnel or treatment processes in the future.

> “Estimated savings of 20% on power consumption”

With health and safety such a high priority for businesses, and regulations continuously changing, UV and Ozone disinfection techniques greatly reduce, and regularly eliminate the many risks associated with handling hazardous materials.

Heating up efficiency

In the case of cooling towers, a heat exchanger on an open loop system which has a biofilm layer, even as little as 1.2mm, will be reduced in efficiency by up to 43%. Here is where Ozone is the ideal treatment.

> “Benefits typically complement each other”

Not only will it remove the fouling from the heat exchanger plates, but it will also keep associated pipework clean, and reduce corrosion from microbial activity (MIC). In the long-term, this will also minimise downtime related to maintenance and repair.

In comparison, when using biocides on the same cooling towers, chemicals will need to be frequently changed, as the agent causing the fouling may become resistant. Through using Ozone treatment methods, you'll see a significant reduction in maintenance, component replacement and, most importantly, your time.

Food for thought

In the food and beverage industry, many fruits and vegetables are washed with ozonized water, killing the spores, mould and yeast that would otherwise spoil the produce. When comparing chlorine-based products against those that are Ozone treated, it's 50% stronger as an oxidizer, and acts 3000 times the speed.

Ultraviolet treatment also has its benefits for the food industry, as it doesn't affect or change the product, or cause any harmful by-products. Research has also indicated that UV may extend the shelf life of fresh produce.

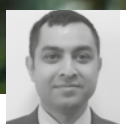
More advanced UV lamp technologies and processor controls mean that UV intensity can be reduced as required, which can lead to estimated savings of 20% on power consumption. Modern lamps for UV units, with low pressure and high output, will run consistently for up to 16,000 hours, making them more of a critical spare, rather than part of a routine service kit. While with Ozone units, the production generator has a 10 year plus warranty, meaning only the filters and seals are consumable parts.

Finally, with UV technology, a high level of guaranteed inactivation of unwanted microorganisms - such as Cryptosporidium in drinking water and Legionella in water systems – can be achieved with modern validation techniques.

We often take for granted that our water supplies are clean, our air is fit to breathe, and our food is safe to eat. But one guarantee is that at some point in the day, you will be in contact with something that has been treated with either Ozone or Ultraviolet technology.

> “Only filters and seals are consumable parts”

How rubber seals are stretching suppliers



Dr Nural Alam
Material Scientist
ERIKS

The food processing industry uses rubber seals widely. But legislative requirements for food contact rubbers are becoming increasingly complex – making it harder to have confidence in your suppliers' knowledge of their responsibilities, and in the products they supply.

Many commercial moulders and commodity seal suppliers only vaguely understand what the legislation requires of them. Or they lack the expertise to interpret the requirements correctly. Which could mean the products they supply are not properly certified, not compliant, and not safe for your application.

To help protect customers in the food and beverage sector from risk, ERIKS is taking major steps to ensure understanding and compliance.

Going above and beyond

ERIKS' policy on EC1935/2004 compliance declarations already exceeds the standards of many competitors. And now the company has established a working group to improve the level of expertise applied to its supply chain for food contact compounds, and to introduce new compliant materials.

Many of the problems for seals manufacturers arise from the number of regulations involved.

The European Union has its food contact directive EC1935/2004. The Chinese government has its own National Food Safety Standards (GB 4806.1-2016 and GB 9685-2016), affecting manufacturing equipment imports into China.

> "A grey area with a wide range of interpretations"

The South American Mercosur trading bloc has issued resolutions regarding food contact materials. The USA's regulations are amongst the longest established and most well-known – and include a 'positive list' of base elastomers, curatives, fillers and other additives, recognised by the USA authorities as safe for food contact.

All the ingredients of a compliant rubber's formulation must be on the positive list. So compounders are significantly restricted in the ingredients they can work with. Some ingredients also face additional restrictions – and even then, the requirements only make the rubber suitable for contact with dry foodstuffs. For full compliance for aqueous foods and fatty foods, the rubber has to pass extraction tests in distilled water and n-hexane respectively.

Responsibility for compliance with these tests is usually the moulder's who manufactures the finished goods, not the compounder's who designs the formulation.

Because all these countries' different requirements are not fully aligned with each other, it means even more material development, compliance validation and test requirements for rubber food contact seals.

The European dis-union

The minimum general requirement of the EU's directive is that food contact material should not endanger human health, change the composition of food, or bring about changes to the taste. More legislation to cover more specific points is intended to be introduced, but until it is there's a grey area with a wide range of interpretations.

France, Italy, Spain and The Netherlands have their own legislation. Germany also has its own non-legally binding recommendations.

Many European countries – including Belgium, Germany, Ireland and the UK – do not have their own legislation, but rely on the general requirements of EC1935/2004. Unfortunately, where there's no defined legislation, the rubber industry's haphazard approach to interpreting this directive often results in inadequate declarations of compliance, which would not be recognised in European law.

Again, since the pieces of national legislation don't entirely overlap, and each country's "positive list" for ingredients is slightly different from the other countries' lists, the complexities are enormous. With so many different regulations to consider, the pool of suitable ingredients for globally marketed food contact rubber products is shrinking.

Formulation experts are facing an ever-increasing challenge to achieve a functional product fit for the intended application.

Trust ERIKS

The global nature of the sealing and food and beverage industries is making life increasingly difficult for the food contact seals supply chain. Finding a supplier you can trust is more important than ever.

As a supplier of sealing products, ERIKS understands the critical requirement to ensure the goods are appropriately specified for each customer's application.

That means undertaking due diligence to ensure all supply chain claims of compliance

“Major steps to ensure understanding and compliance”

are valid. It also means confirming that products are moulded in accordance with good manufacturing practice, in a suitably clean environment, and that everything is audited and fully traceable.

ERIKS also has a global Materials Development Team of in-house elastomer technologists who take responsibility for compliances, end-to-end formulation design, validation testing and manufacturing process definition for ERIKS' food contact rubber materials – ask for the ERIKS compound number and data-sheet when sourcing your food contact elastomers.

For food contact seals you can trust absolutely, you can absolutely trust ERIKS.

“A supplier you can trust is more important than ever”

Where the batter mix isn't kneaded

David Carmichael
Senior Project Engineer
ERIKS

There's no taste quite like that of a freshly baked batch of crumpets – crispy on the outside, soft and fluffy at the centre. But bearings don't feel the same about the glorious gooey consistency of batter mix as we do. And one well-known bakery found this out the hard, and costly way.

Alarmingly, and inconveniently, the customer was experiencing failures every 4-6 weeks, costing in excess of £2,000 each time. But just one phone call to ERIKS' bearing specialists, and it was only a matter of time before the recipe for efficiency was served up.

Batter versus Bearings

The initial inspection quickly revealed that the problem stemmed from the seals not performing their duties correctly, allowing the ingress of batter mix into the bearing assembly.

Normally, when leaving the mixing bowl, the batter's next destination would be a baking tray then into a hot oven, but these batches had completely different ideas.

Entering the assembly through the drive's front cover, the residue continued to build up in the unit. Passing through the outer cover seal, a mechanical seal and two inner PTFE rotary shaft seals, the bearings were inundated with gunky batter.

It had travelled all the way through the bearing assembly right to the back cover, and its abrasive consistency resulted in the rotary shaft seals being extremely worn. Even with four layers of sealing technology, the pressure exerted by the batter mix was too overwhelming for the various seal types.

Not so crumpet and butter

ERIKS' bearing division got to work, and the first port of call was to re-design the seal arrangement, including upgraded bearings, a complex labyrinth seal arrangement replacing the mechanical seals, and new PTFE seals, the latter being a request of the customer. Unfortunately, this wasn't the answer. Three months later, failure struck again.

> "Acting as a flinger"

The Beta drive was re-inspected, and just like previously, the seals had once again failed.

A piece of cake

Standard nitrile rubber rotary shaft seals were then installed, with a Gamma seal over the top of the assembly. As it was mounted to the shaft, and seated flat to the top cover, it would rotate simultaneously, acting as a 'flinger' and forcing the batter away from its previous point of ingress.

As it runs flat on the top cover face, the more pressure that was exerted from the batter, the better it would seal, adding that extra layer of protection required to ensure the bearing assembly was free from unwanted batter mix.

Simalube Single Point Lubricators were also installed, with OKS 404 high-temperature and high-performance grease lubricating the bearings, and Rocol Food Grade semi-fluid grease keeping the labyrinth clear by maintaining it under positive pressure, combatting the pressure being exerted by the batter.

> "Hard-to-reach points permanently supplied"

The introduction of the single point lubrication systems was a smart one, delivering multiple benefits to the customer. The ingenious design provides precisely calculated automated lubrication, continuously, from one month to a full year, ensuring that grease is served consistently at the right levels and to those hard-to-reach points.

This, in turn, would extend the life-cycle of the bearings, increase profitability through reduced downtime, and minimise the requirement for maintenance sources with its fully-automated design.

Oh, and it's environmentally-friendly and 100% recyclable. So, not only did it save the customer time and money, in the long run, it protects the planet.

> "A well-conceived, bespoke solution"

Risen to the challenge

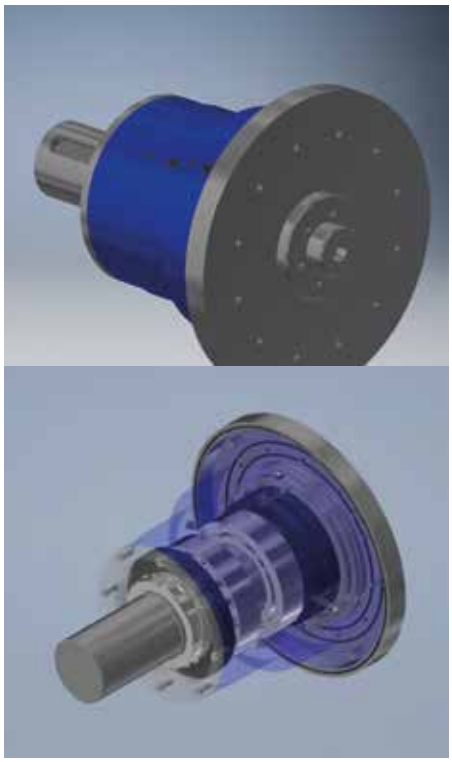
Reporting back 18 months on, the customer confirmed that the unit has been in full production without any issues. A far cry from the previous 6-week stoppages.

Since completion, two additional Beta Drive versions have been re-designed, and two further are in the process, although they slightly differ in design.

It's been an on-going issue suffered by many bakeries across the country, with ERIKS bearing specialists facing four different designs in recent times. But while it was not a simple a fix, they have redesigned the sealing and bearing arrangements for all four of them.

Once again, ERIKS' know-how and expertise 'battering' a problem with a well-conceived, bespoke solution.

> "Seals not performing their duties"



Air that's good enough to eat

Mark Stone
Technical Manager
ERIKS

Aruj Abbas
Product Manager
FESTO

Compressed air is an essential part of the diet of any production facility – and the food manufacturing sector is no exception. In fact, this sector uses compressed air in three different ways, making it more important than ever to ensure the air is produced efficiently, and used effectively.

Like most other modern manufacturers the food industry firstly relies on compressed air for its pneumatic systems. Secondly, some processes within the industry involve compressed air coming into contact with food itself. And thirdly – where air cleanliness is most critical – some food manufacturing involves direct injection of compressed air into food (known as flocculation).

These three different uses demand three different levels of compressed air purity which, using their practical experience in the field, pneumatics manufacturer Festo has categorised (See Top Tips opposite).

However, some compressed air users are incurring unnecessary costs by cleaning their air to the wrong level, in the wrong place, at the wrong time.

Cleanliness where it counts

One cubic metre of unprepared ambient air at 50°C contains up to 180 million dirt particles, up to 80g of water and up to 0.03mg of oil.

> "Some compressed air users are incurring unnecessary costs"

> "Optimise performance, minimise pressure drop, reduce energy use"

These can cause corrosion, friction, mechanical damage, blockages and long-term consequences such as higher maintenance costs, malfunctions, shorter service life and higher energy costs. In food production, if any of these contaminants find their way into end products, the consequences can be even more severe: from fines to reputational damage.

So if you use compressed air anywhere in your manufacturing process, you'll be well

Application	Specification of typical applications	Particles	Moisture (vaporous)	Total oil content
Food industry, pharmaceutical, dairies	Direct contact between compressed air and:	1	4	1
	Packaging material "non-dry" products			
	"dry" products	1	2	1

aware of the need for it to be clean. But where and when should you clean it for the greatest cost-efficiency?

Make a clean start?

Many food manufacturers clean their compressed air in the compressor house, to food- contact levels of cleanliness.

This not only means they're having to use more energy to achieve the required flow rate through these upstream finer filters. It also means that when the air reaches point-of-use, its pressure could have dropped below the required operating pressure. And most worryingly, by the time the air has travelled through the system and comes into contact with food, it could have picked up all kinds of new contaminants.

To ensure optimum air cleanliness – with the most efficient use of energy, reduced energy costs and a smaller carbon footprint – Festo offers 5 Best Practice top tips.

> "A m^3 of unprepared ambient air contains up to 180 million dirt particles"

BEST PRACTICE

5 Top Tips

Tip 1

Size and position air preparation units carefully

Filter bowls oversized for the flow rate required by the air preparation unit impair filtration performance and waste money. Using smaller units with coarser filters upstream, and finer filters downstream at point of use, can ensure cost-effective clean air where you really need it.

Tip 2

Drain condensate effectively

Mounting condensate drains within or below filter units will prevent carry-over of extracted liquid into the downstream air flow. This will reduce contamination and corrosion.

Tip 3

Set pressures accurately

Machine pressure is often set by the requirements of only one or two components. Introducing individually regulated pressure zones, or a pressure booster, can allow for reduced pressure and reduced energy use and costs.

Tip 4

Monitor pressures frequently

Gauges with pre-set operating zones enable fast setting and checking of operating pressures, even by unskilled technicians. When over- or under-pressure is easy to see it can also be quick to adjust. Pressure monitoring also makes it easy to see when filters need changing. Pressure sensors can provide feedback to the machine control system and trigger alarms and have dual colour displays for enhanced visual feedback.

Tip 5

Change filters appropriately

Clogged filter elements reduce airflow rates by up to 50%, and fail to remove particulates. Monitoring pressures (see above) and using flow meters will help to identify when it is appropriate to change a filter element. This is a low-cost, simple maintenance task that will optimise performance, minimise pressure drop and reduce energy use.

Who's carrying who?

Olga Tumareva
Product Manager Food
REXNORD

Investing in a conveyor that takes a weight off your mind, and helps you take a positive long term view of cost and performance - without compromising on cleaning, hygiene and sanitation - is where Rexnord® can help.

In many processing applications – and in the food and beverage industry in particular – the conveyor plays a critical role. If you want a cost-effective system that reduces manual handling, accelerates movement of goods and speeds-up actual production, then only a conveyor will do.

However, the food and beverage sector adds a layer of difficulty, with the need for conveyors which are also hygienic and sanitary.

This leads to particular design requirements, which may have to take precedence over overall performance and short-term cost considerations.

A growing problem

Your products are not the only thing conveyors carry. Unless they're kept scrupulously clean they can also carry bacteria, which grow happily wherever water gets trapped. Some of these bacteria can be dangerous pathogens such as listeria, with obvious and dangerous implications for food production.

Sometimes even the product or ingredient itself can cause problems, if it's in the wrong place at the wrong time.

A conveyor carrying potential allergens such as peanuts can easily leave traces on a conveyor. If these then find their way into other products when the conveyor is switched to a different line, even the smallest trace in the wrong place can be dangerous – or even fatal – to someone allergic.

Belt manufacturers have developed several different design options to help overcome these challenges and ensure the performance, cleanliness and safety of your conveyor systems.

> "Performance, cleanliness and safety"

Make a Klean sweep

The Rexnord KleanTop line is one example of a belting series designed specifically for the food processing industry.

While plastic belts may be easy to clean, they are also easy to scratch and crack, leaving spaces for germs and pathogens to grow. Screw heads are another danger area, where water can build up and provide a breeding ground for bacteria. With belting solutions such as the KleanTop 390, 2010 and 1200 Series, Rexnord overcome the issues by using food-safe materials and ultra-hygienic designs.

> "Effective cleaning in less time, with less water and fewer chemicals"

With an open hinge design which makes it easier to access the hinge for cleaning, the Rexnord 590 Series KleanTop is a ½" pitch belt, held together with a single rod per row of belting. The rod is accessible from either side, making it easy to disassemble and reassemble with just a screwdriver, to reduce downtime. The open hinges also drain water more effectively, and offer greater resistance to abrasion. That not only means fewer places for bacteria to hide (helping to increase hygiene levels), but also a longer rod life – reducing the Total Cost of Ownership. Capable of accommodating a 0.75" diameter nosebar, the 590 Series is able to move even the most delicate products without damage. At the same time, an optimised sprocket design ensures a smooth and damage-free transfer from belt to belt.

> "A conveyor that takes a weight off your mind"

Keep your cool

If your application requires cooling, it's important that air can move consistently without dead spots. The Rexnord 1090 Series KleanTop Belt achieves this with a scalloped bottom to the belt, enabling it to run on a roller rather than a sprocket. It also features the open hinge design already described, and a headless retention system.

The belt edge area is where belt breakdown can occur, leading to contamination, so reinforcing the edge helps to reduce the risk. Both the 1090 Series and the 1010 Series feature a reinforced belt edge.

To allow more effective cleaning in less time, with less water and fewer chemicals, the open hinge design of the 1010 Series exposes 60% of the rod.

The platform for your belt

As automation becomes more integrated and Industry 4.0 becomes a reality, a digitally-connected conveyor can help to optimise productivity and enhance energy efficiency. It can also lower the Total Cost of Ownership of the asset, by using data to inform preventive maintenance schedules.

The Rexnord DiRXN productivity platform offers real-time, time-critical and product-specific data. Together with the innovative design features of the KleanTop series, it helps you ensure your belt delivers your products hygienically, wherever and however you want them. And it delivers productivity, efficiency and cost savings too.

Hygienic, practical, cost-effective fluid management

– at a pinch

Basil Sheard
Applications Engineer
IMI

How do you take control of your process pipeline fluids, gases, slurries and powders, without risking contamination? In the food and beverage sector, increasingly the answer is pinch valves.

Diaphragm, ball, butterfly and needle valves are the traditional options. But when there's an equally hygienic solution, that's even simpler to install and use, and more cost-effective, why wouldn't you try it? Especially when there are three variants to meet different requirements, all conveniently available from one supplier.

A straight answer

In food and drink processing, keeping the media separated from the valve is essential to prevent contamination. In some industries the opposite is true: it's the valve which needs protection from media such as solvents, glues or aggressive chemicals.

> "Flexible, affordable valve choice"

But in both cases, the pinch valve is a practical and simple solution, with several advantages over more complex technologies. Not least of which is the straight-through flow it offers, with very little pressure drop over the valve, and minimal volume loss when transitioning between batches.

The pinch valve's simplicity also eliminates dead volume, where fluid can be trapped and become a potential contamination source. And of course, its simple design reduces downtime for fitting, tubing changes and valve replacement.

While all types of pinch valves share a set of underlying common principles, manufacturers focusing on one type alone limit end-users' options. That's why IMI Norgren offer a choice of three: Solenoid, pneumatic and proportional, each bringing specific benefits.

> "A choice of three with the same basic features, but specific benefits"

Quick – close that valve!

The IMI Norgren Versagrip™ Solenoid Pinch Valve is a patented solenoid-actuated valve, designed for fast operation, easy tube loading and unloading, and a secure hold on the tube during valve actuation.

In many processes, speed of valve closure is crucial. So, a pinch valve with an average actuation speed of 80 milliseconds or less with an unloaded tube could be the quick answer.

By specifying the tube you are using, IMI Norgren will be able to recommend the pinch valve that meets your requirements. For optimum performance add-ons such as a solenoid controller option, manual overrides and digital feedback sensors are also available.

Panel mount-ready and with seals that make cleaning and sterilisation easier by preventing liquid ingress during wash-down, the Versagrip™ is a flexible, affordable valve.

When the pressure's on

For controlling higher pressures however, the pneumatic pinch valve is the answer. Pneumatic pinch valves can be actuated with a much higher pinch force than the solenoid variants.

Robust and reliable, compact pneumatic pinch valves from IMI Norgren feature panel splash seals for wash-down and are available in an aluminium housing with a black acetal head (Acro M600 Series), black anodised aluminium or 316L stainless steel (Acro M900 Series).

The Acro M600 Series offers three models for lower volume flows at media pressures typically up to 60psi. The pinch gap is adjustable for use with optimised tube sizes, and options include valve state detection sensors and 3 or 4-way controllers for pressure venting between states.

For still higher pressures, the M900 Series Pneumatic Pinch Valves can handle media up to 75 psi and work with harder or larger diameter tubing which requires a stronger pinch force.

They can be set up in normally open or normally closed default states and options include 3 or 4-way controllers, valve state detection sensors and manual overrides.

On, off, or in-between

Solenoid and pneumatic pinch valves are the most practical and efficient solution for fully on or fully off flow control applications. But what if you want more flexibility? Then there's the IMI Norgren PE900 Proportional Pinch Valve.

Flexible and adjustable, the PE900 completes the IMI Norgren Pinch Valve line-up, and proves that whatever critical fluid you have that needs hygienic handling, you only need to talk to one manufacturer.

Sounds like a dream? Pinch yourself.

> "Versagrip™ solenoid pinch valve"

Range	Actuation type	Max Tube Diameter	Max media pressure	Durometer (Shore A)
Versagrip™	Solenoid	3/8" (9.5mm)	15 psi (1.0 bar)	Up to 60
M600	Pneumatic	3/8" (9.5mm)	60 psi (4.1 bar)	Up to 70
M900	Pneumatic	1-5/8" (42mm)	75 psi (5.2 bar)	Up to 85

> "Simpler to install and use, and more cost-effective"

Safety and savings, simply delivered

Damien Moran
Field Segment Manager, Hygienic - Pharmaceutical
bürkert

In an ideal world, the easier we can make the tasks we undertake, the better. But although simplicity is something that we aim for, safety and reliability are elements that we have full control over, therefore must remain key drivers in every project.

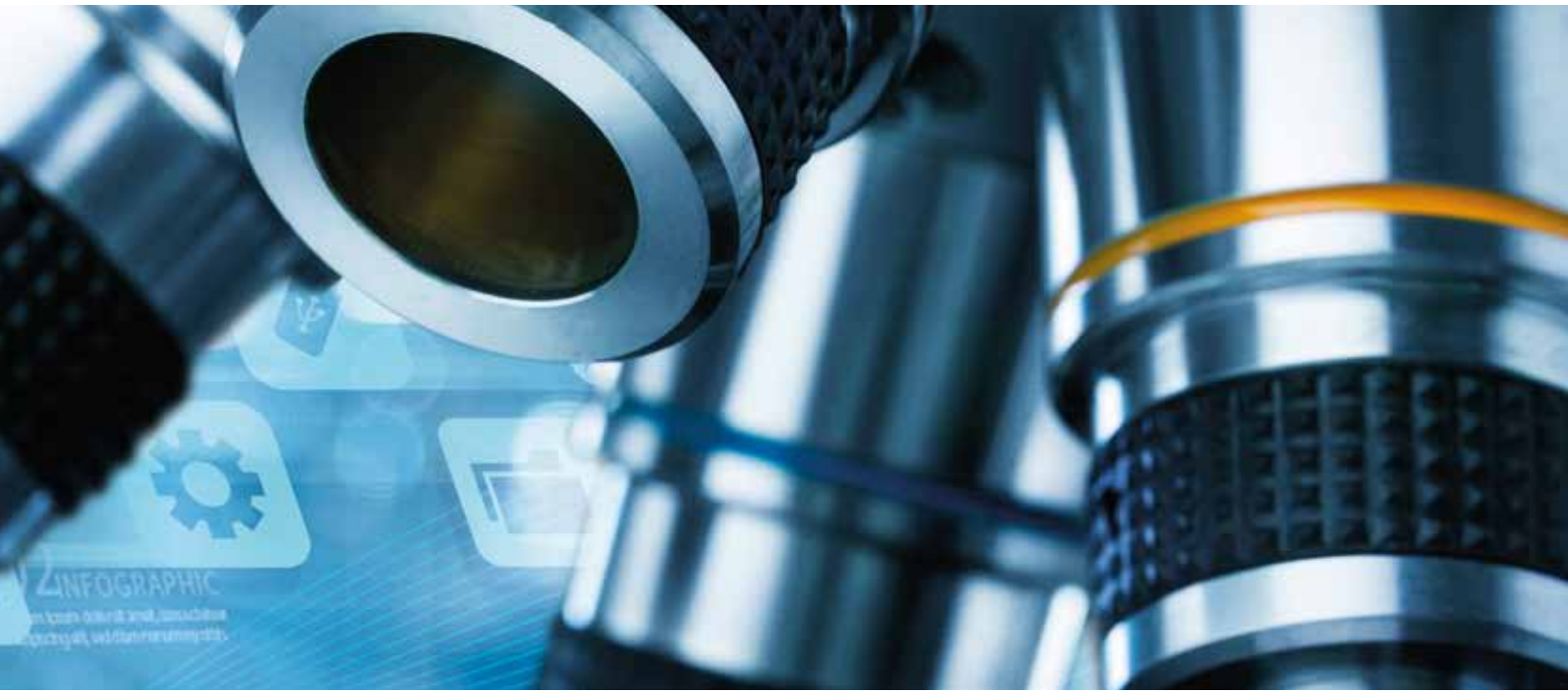
When a Wales-Based biotech firm was opening its new hygienic production facility, the on-site contractors required a brand with experience, knowledge and unrivalled technical support. Queue, Bürkert. Removing the hassle from the customer and delivering significant cost savings and increasing efficiency and safety.

Large scale project

Field Segment Manager .hygienic Pharmaceutical, Damien Moran explained: "Our aim was to deliver the best solution for the customer and our products are designed so that they can fit into local, decentralised or, as in this case, centralised control structures. We were able to keep project costs to a minimum, while ensuring reliability."

The new production facility consisted of eleven reactor vessels, split across nine production areas. The scale of the project, which included the installation of more than 1,400 control valves, meant that equipment would be located both in and outdoors, with some of the production areas classified as ATEX Zone 1.

Any valves, sensors or control equipment located in potentially explosive atmospheres had to be manufactured and certified specifically for those areas, but also installed by a suitably qualified engineer.



Specialist requirements

Initially only approached for the supply of diaphragm valves, conversations about the project quickly evolved, and the contractors realised that Bürkert would be able to deliver all the process valves that were required, including butterfly, quarter turn, diaphragm and manual.

3D CAD drawings for every valve were also required, as this had a bearing on the final locations of the new valves. Simply, because they needed to fit into the allocated spaces around the vessels, but also to prove relevant certification.

> “Delivering significant cost savings and increasing efficiency and safety.”

In addition to the standard process valves, a range of bespoke solutions for tank bottom valves and multi-seat valve blocks were manufactured, utilising specialist manufacturing capabilities to ensure that every part was delivered with the correct control gear and seals.

Improved efficiency. Simple project management

With a total of over 1,400 process valves, each accompanied by documentation and drawings, a convenient online resource was set up for the installation engineers, who could simply log on and access all the essential information for the safe installation of the valves.

The logistics of the project were also further simplified, with all components packaged and delivered accordingly for each specific production area. This, in turn, sped up the installation process by ensuring that all necessary valves were in the correct location, at the right time.

Reducing costs, while maintaining standards

All the automated valves used across the project came equipped with pilot solenoid valves in the control head, or quarter-turn valves located in the switch box on the top of the controller. This made many external valve islands and associated ATEX rated pneumatic control panels redundant, saving the project approximately £80,000.

Following the installation, it’s been confirmed that the entire process was made simpler than the company had ever envisaged. The ability to quickly adapt to changes in requirements and change individual valves, coupled with excellent manufacturing capabilities assisted in smooth transitions between Bürkert, the installers and end-user.

The strong partnership between all parties was the real driver in delivering an efficient and cost-effective project, made simpler for the customer, but guaranteeing the necessary elements to ensure the safety of end-user employees.

Don't get caught in the steam trap

Bill Gibson
Technical Manager Valves
ERIKS

The cost of producing steam, and steam's value to production processes, is well known. Yet too many industrial sites still have steam traps which are wrong for their application, faulty, incorrectly installed, leaking, or completely non-operational. An expert Steam Trap Survey can reveal the problems and offer solutions and cost-saving opportunities too.

When steam traps are appropriate for the application and operating efficiently, you can expect to see anything from a 10-30% reduction in your fuel costs. For example, the ideal return temperature for a hotwell is 90°C. If your returned condensate is cooler than this, you're wasting energy and money to reheat it.

Every 6°C your returned condensate rises in temperature will deliver a 1% energy saving. So an improvement from 70°C to 90°C will represent a 3.33% energy saving.

> "Solutions and cost-saving opportunities"

As well as reducing energy use and costs, condensate recovery with effective steam traps can:

- **Reduce water** use and costs
- **Lower emissions.** Less energy use means lower levels of CO^2, NOx and SOx emitted into the atmosphere
- **Reduce safety risks.** Fewer vapour clouds lead to less build-up of water on the ground, which can be a slip hazard
- **Reduce blowdown.** This in turn reduces water and energy wastage
- **Prevent corrosion –** as a result of improved feedwater quality. This can improve efficiency and lengthen component life throughout the whole system, not just in the boiler itself.

> System improvement projects with quantified paybacks

The consequences can't be ignored

Taking a closer look

Inefficiencies in your steam system are like steam itself: hard to see and impossible to pin down. Yet ERIKS' expert engineers have quantified partially leaking traps on some customers' sites as costing over £10,000 a year in wasted energy.

As well as increased costs and reduced manufacturing process efficiency, inefficient or ineffective steam traps can also lead to water hammer, which can cause serious damage to other equipment, and can even be a safety risk.

Water in the condensate return lines can also lead to a build-up of corrosion. And steam leakage can increase pressure throughout the condensate network, making it harder for all of the steam traps to drain condensate, with knock-on effects on processes.

The sheer number of traps and their locations can make it challenging to carry out a survey. But the consequences of failing to do so means the need can't be ignored.

Trapping the measurements

Gathering and interpreting steam trap performance figures is a skilled task.

The most comprehensive, useful and accurate measurements will be obtained by specialist engineers with appropriate equipment, such as ultrasonic measurement transducers. The EX UE 2000, for example – as used by ERIKS' engineers – can produce vibration, sound and frequency readings.

Additional information can be provided by an infrared thermographic camera. This can build-up an image of the temperature gradient over a single component – such as a steam trap – or along a section of pipe.

Full steam ahead

A Steam Trap Survey by experienced ERIKS Condition Monitoring engineers not only reveals leaks or other inefficiencies in your steam system. It can also highlight opportunities for energy- and cost-savings, and efficiency improvements.

The Condition Monitoring team has an understanding of systems and components beyond the steam system alone. So as well as knowing the issues that arise with steam, they also understand the wider implications for your processes and systems, including pumps and valves. They can identify root causes of problems, and highlight potential changes to individual components or the wider system to increase efficiency, save energy or reduce costs. And they can propose system improvement projects with quantified paybacks. This service will be available in the Spring.

ERIKS has its own-brand Econ® range of flow control products, but also offers many other leading brands. Together with ERIKS' repair and replace capabilities, this means any proposals are solution-neutral and made with complete brand impartiality.

Once the survey is complete, ERIKS will produce a detailed and comprehensive report which the engineers will talk through with the customer. They'll highlight problems and risks, and identify opportunities that can help the customer to make more of steam, for less.

Cheese Factory in a pickle

Until ERIKS carried out a Steam Trap Survey, a cheese factory in the Midlands was unaware of the sizeable emissions it was producing and the substantial losses it was incurring from its steam system:

CO^2 emissions	32 tons p.a.
Energy loss	121MW p.a.
Steam loss	18 tons p.a.

TOTAL COST OF STEAM LOSS
Over £6,700 p.a.

Is your insulation lagging behind?

James Bridges
Director HPP
ZOTEFOAMS

It's found everywhere from high-performance trainers to outer space. It's used in the nuclear industry and in pharmaceutical manufacturing sites. The range includes the only foam insulation in the world that complies with the FM4910 Cleanroom Materials Protocol. And when used for pipe insulation, it's been described as "pipe lagging with added science." So, imagine what **T-FIT®** unique insulation technology could do for your food and beverage production facilities.

The range includes T-FIT® Clean and T-FIT® Hygiene, designed for cleanrooms and aseptic areas respectively and manufactured from Zotefoams' ground-breaking ZOTEK® F high-performance PVDF foam, plus T-FIT® Process, manufactured from nylon for more demanding process areas. The properties of these unique foams ensure they are the most thermally effective, hygienic and adaptable form of insulation for hot and cold pipes. Characterised by a completely closed cell structure, T-FIT® Hygiene exceptional thermal insulation, at the same time as improving cost-efficiency, reducing risk, and lowering your Total Cost of Ownership.

> "Resistant to crumbling, moisture and chemicals"

Insulation, pure and simple

ZOTEK foams are manufactured via a unique environmentally friendly process which saturates resins with nitrogen at extremely high pressure and then controls expansion under pressure to give a finished product which not only provides a high level of thermal insulation, but is also odour-free, non-toxic, and has high microbial resistance – making it ideal for applications in food and beverage processing and production environments.

> "Less room for microbes to hide"

The fine closed cell structure of the foam means there's simply less room for microbes to hide. That's why T-FIT® Clean doesn't just meet but actually exceeds the industry standard ASTM G21-15 for resistance to fungi. All T-FIT® products have a wide temperature tolerance – so a hot wash-down which flushes out and kills bacteria won't damage the insulation.

In an application such as ice cream manufacture, this means neither the condensation formed when cold materials pass through insulated pipes, or the heat of a subsequent wash-down, will adversely impact the foam.

Lagged for longer

T-FIT® offers a highly cost-effective replacement for standard lagging, which inevitably degrades over time.

Options such as PVC and conventional polymer and elastomeric foams are far less robust, with a tendency to crumble. This makes them less thermally efficient, as well as creating dust and hygiene problems as they deteriorate. T-FIT® is a more robust solution, that's not only resistant to crumbling but also to moisture and chemicals, even in an acidic environment. It's also naturally fire suppressant, with ultra-low smoke, flame and toxicity ratings.

> "Pipe lagging with added science"

Manufactured in a natural white colour, T-FIT® Clean and T-FIT® Hygiene discolour far less quickly than conventional lagging solutions. So as well as retaining its insulating effectiveness for longer, T-FIT® looks better for longer too.

T-Fit® for purpose

T-FIT® is a range of unique technical insulation products, purpose-designed for demanding, highly controlled production environments. In addition to pipe insulation, ZOTEK® foam, from which **T-FIT®** is produced, can be customised for uses such as jacketing large vessels.

Each product in the **T-FIT®** range has been developed specifically to meet the challenges of a particular production area and exceptionally demanding environment:

T-FIT® Hygiene – Aseptic areas including food and beverage processing and production

T-FIT® Process – High-temperature processes including steam lines running up to 200°C and many food processes

T-FIT® Clean – Cleanrooms

Once installed, you can expect T-FIT® to have a service life of at least ten years: three to four times longer than conventional lagging.

Less is more insulation

The highly effective insulating properties of ZOTEK foams mean you need less insulating material to do the same job as a traditional polymer.

T-FIT® unique insulation systems have a standard wall thickness of just 6.35mm (1/4") which allows them to be used in areas where space is at a premium and achieving coverage with other, thicker materials is a problem. The skid size can be reduced at the design and construction stage, and the insulation is also lighter and uses less polymer.

Custom-moulded fittings, heat welding capability, and specially developed overlapping PVDF self-adhesive tape all help to make installation quicker and easier and reduce costs. Instead of having to rely on – and pay for – specialist installers, you can buy direct and use your own engineering and maintenance staff to install T-FIT® after minimal training.

If you're looking for efficient pipe insulation with a high level of hygiene and a lower Total Cost of Ownership, Zotefoams' T-FIT® insulation technology should fit you to a T.

*T-FIT is a business unit of Zotefoams plc.

Anaerobic adhesives. The answer to better cleanability?

Bob Orme
Senior Technology Specialist
LOCTITE

Irrespective of the industry, hygiene is a top priority. Not only to underpin product safety, but to address the need to minimise costs associated with cleaning.

Today, the quest for a cleaner and more cost-efficient plant seems to be underway, and it's believed that improving cleanability, as well as machine functionality, is the driver in achieving these goals. Afterall, a cleaner environment, is a safer and more productive one.

In the case of pumps, for example, many are cleaned-in-place, without disassembly. This often creates widespread issues, with cleaning fluids not reaching those 'hard to hit' areas on our process machinery.

Contamination during the next phase of production is therefore more likely.

To combat the problem, manufacturers have begun to develop new models, which eliminate the small crevices where bacteria accumulates. But could using anaerobic adhesives provide a simpler, more cost-effective option to this on-going issue?

Hygienic design, just the beginning

More emphasis is now being placed on prevention, such as minimising corrosion and leakage, with the hope that equipment will work better, for longer and help reduce the burden of maintenance.

Previously, vibration locking devices have been used to prevent the loosening of threaded fasteners, leading to a reduction in leaks. But although they have their advantages, none are fully able to eliminate leakage and corrosion. Here's where adhesive threadlockers really add value.

Filling the gaps

Anaerobic adhesives are an excellent method of augmenting the seal or holding force of a mechanically joined assembly. They completely fill the gaps between mating surfaces and joints, curing at room temperature to form a hard-solid thermoset plastic.

> "Adhesive threadlockers really add value"

With the fitting secured in place, the risk of loosening from vibration is significantly reduced. Moreover, it will not contaminate any lubricating oils. They are also often complemented by flange sealants, which are commonly combined with thread lockers on flange bolts to guarantee a leak-free assembly.

Adhesive bonding provides uniform stress distribution over the entire bond face, which has a positive effect on the static and dynamic strength achieved, without changing the surface or structure of the joined materials. They also for a film to prevent contact corrosion. So, from a cleanability standpoint, the results are positive.

Chemical resistant coatings are another means of preventing oil loss from seepage, and are ideal for sealing casting parts where porous areas formed in the manufacturing process. Through coating the interior of a bearing frame during assembly, for example, the dangers of leaks are eliminated. Or, if you're aware of where the leak points are, a wicking grade threadlocker is an excellent choice for creating an effective seal.

> "From a cleanability standpoint, the results are positive"

Unhygienic leaks are also a common challenge, particularly with pumps, with air space, once again, being the main culprit. As with threadlocking, there are a range of products to choose from – solvent-based compounds, PTFE tapes, and paste – but anaerobic adhesives truly have the edge.

Removing limitations

For years, conventional joining methods, although fairly successful, have come at high costs. But also, limitations. For example, welding is limited to metal-to-metal or specific plastic-to-plastic bonds. But by using anaerobic adhesives, the scope of substrates is substantially extended to include plastic-to-metal, glass-to-plastic and rubber-to-metal. The possibilities are endless as they say.

The hygienic design and maintenance of our production equipment is clearly essential, and cleanability is highly relevant to all manufacturing and processing plants. So, as the quest continues for cleaner and more efficient manufacturing facilities, it seems that engineering adhesives have a vital role to play.

By choosing LOCTITE®'s range of innovative sealing products, maintenance engineers have the assurance that the products they use, are the same as those supplied by OEMs.

Rising to industry demands

Callum Miller
UK Aftermarket Manager
NSK

In a modern world with so much CCTV in operation, it's hard not to feel like we're constantly under the microscope. And for companies in the food and beverage sector, with the growing concerns of contamination and trust from the public somewhat diminishing, eyes are open wider than ever before.

An upsurge in food contamination cases has called for a higher demand for machine safety and reliability, while easier methods of maintenance are also high on the list of priorities. Cost-effective production must be facilitated, and outstanding performance and maintenance operation assured.

So, with such a need for continuous high-speed operation, and meeting the most stringent hygiene standards for years, what is it that's really needed?

The answer: reliable and robust bearings.

Bearing applications in the food and beverage sector are vast and varied, from raw material cutting and mixing (primary) to conveying, inspection and packing solutions (secondary). But they all have one thing in common. They must be safe and sanitary.

Essentially, the food production process is divided into two main steps: pre-processing – washing, cutting and sorting; and post-processing – distribution, filling and packing. And NSK's core technologies have responded to the demanding needs of the industry, contributing to improved performance in food processing machinery.

> "They must be safe and sanitary"

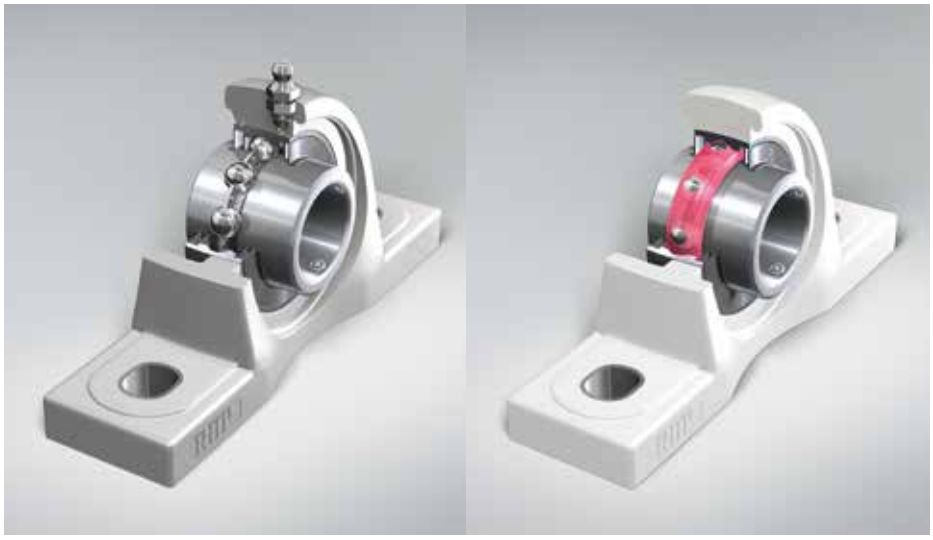
Hitting the sweet spot

Since the discovery to turn sugar-cane into granulated crystals, sugar has become a daily commodity. We have it in our tea. We love it on our cereal. We even borrow it to and from our neighbours. But there's so much to the process until it tingles our taste-buds - and NSK's innovative technology has hit the sweet spot for many sugar-cane mills across the globe.

> "Investing in the right technology for your application"

From harvesting and preparation to transportation, each step of the process is handled with machinery that is purpose-built to operate in extremely harsh conditions. And with operating environments subject to drastic changes, the correct bearings, such as the Silver-Lube® and Life-Lube® series, must

> "A higher demand for machine safety and reliability"



be installed at the earliest stage to ensure peak performance, efficiency and quality are guaranteed.

Silver by name. Gold by nature.

Comprising high-grade Stainless Steel bearing rings, cage and balls with seal core and grub screws, grease nipples and bolt-hole liners, the Silver-Lube® series' thermoplastic polyester resin housing is not only non-corrodible, but has excellent resistance to cleaning agents and chemicals. And at a wide temperature range - from -20°C to +90°C.

In comparison, the Life-Lube® series combines the chemical properties of the Silver-Lube® with the excellent sealing and lubricating attributes of moulded oil inserts. Further to the design, they're manufactured with paint-free housings to prevent chipping and flaking, meaning they're ideal for environments where contact with water and process fluids is unavoidable.

> "Contributing to improved performance"

A barrel load of savings

A European producer of machines for vegetable treatment was experiencing costly problems with its barrel washers. As the washer drum rotated, it placed the bearings under water once per spin. This continuous cycle left the bearings needing to be replaced every three months due to water washout, leading to severe corrosion.

The issue was investigated and a bearing arrangement with better sealing performance was proposed, and special Triple-Lip Sealed bearings were installed.

The new bearing arrangement contained nitrile rubber triple-lip units, which were bonded to the protective pressed steel shield to help withstand exposure to water and other contamination, and mounted on the shaft with a balled set screw, to provide a greater resistance to loosening.

The simple replacement and installation provided the customer with a cost saving of €56,600 through increased productivity, while extended re-lubrication intervals greatly reduced maintenance costs and increased the bearings lifecycles from three months to more than seven.

Looking to the future

As the industry continues to develop, eyes will get wider and wider, with standards getting higher and higher. Only by investing in the right technology for your application, ideally at the opening phase, will you ensure that your production and efficiency KPIs are met and regulations adhered to.

Then, you will reap the benefits of higher productivity, reduced downtime, minimised maintenance, and a lower Total Cost of Ownership.

IN **FOCUS**

Hygienic Geared Drives, the safe solution

Fenner®

Reliable | Trusted | Connected

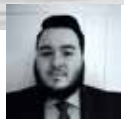
90% of bacterial contamination is caused by bad hygienic design, don't become part of that statistic, trust Fenner® Hygienic Geared Drives

Designed specifically for wash-down duty applications using acid or alkaline solutions required for food, beverage, pharmaceutical and process industries, the Fenner® range of Hygienic stainless steel geared drives provides complete interchangeability for simple upgrades as well as offering up to 15 times the service life.

TRANSMISSION BELTS | COUPLINGS | SHAFT FIXINGS | CHAINS | GEARBOXES | MOTORS | INVERTERS

fptgroup.com

Motors causing ‘fowl’ play for farmers



Alex Mills
Product Manager, Gearboxes, Motors & Drives
ERIKS

Imagine owning a poultry farm and having hundreds of chickens and turkeys to de pluck each day ready to meet your contractual requirements. You’re not going to be able to do this by hand now are you?

So, have you every wondered how those succulent thighs, tasty wings and crowns are prepared before they hit the supermarket fridge or make it onto the plate in your favourite restaurant? Well, a de-plucking machine is how.

Frequent farmer issues

Poultry farms are hardly the cleanest environments you’ll see, and more often than not, farmers across the length and breadth of the country continue to stumble over the same issues. And costly issues at that, as one ERIKS customer was frequently finding out.

Due to the arduous nature of the de plucking process, and the wet conditions in which it takes place, the customer’s standard motors on the plucking machine were failing every 4-6 weeks, causing costly downtime due to regular maintenance and replacement.

So, ERIKS were called in to find a solution that would reduce these inconvenient problems.

Two reasons for failure

The motors were failing for one of two reasons; either the feathers were clogging up the cooling fins on the motor causing them to overheat, or water ingress was causing them to fail prematurely. The ERIKS engineer suggested switching to a Fenner® Hygienic stainless steel motor, which would solve both these ongoing issues.

Fenner®

Both solved

Manufactured with hygiene at the forefront of its design, the Fenner Hygienic Range boasts a chemically resistant stainless steel AISI304 body, with an electrolytic polished finish. The design characteristics are further enhanced with smooth exteriors, eliminating catchment areas and indentations, preventing the accumulation of dirt on the motor.

The innovative range is also IP66 rated, ensuring that the motor is watertight, and the unique anti-condensation breather – installed as standard – keeps moisture and dirt out of troublesome areas.

A cost saving recipe

Taking the Fenner Hygienic motor on an initial trial, it seems to have been a recipe for success for the customer, lasting approximately six times the life of its predecessor, paying for itself twice over.

Early calculations have shown, that in a six-month period, the customer has made savings of over 33%, based on the cost of purchasing a standard motor every month for six months against the single purchase of a motor from the Fenner Hygienic range. And that’s not including the costs associated with installation.

Buy time, save money

Russ Williams
eCommerce Manager
ERIKS

Managing your supply chain is a time-consuming and critical process, which can positively or negatively affect your whole production operation. The latest enhancements to the ERIKS Webshop are designed to help you be even more efficient and even more effective in your parts purchasing, by making it far more than a place to buy parts.

The ERIKS Webshop is not just "Amazon for industry." Like Amazon, it does have vast stock (over 250,000 different products at the last count) and it does deliver quickly and efficiently to your door. But unlike Amazon, it also offers support and advice to help you select precisely the right product. Even if you're not 100% sure what you're looking for.

> "Far more than a place to buy parts"

Good on paper

Not everyone's ordering system is fully geared-up for online purchasing. For example, there may be worries about a perceived loss of purchasing or budgetary control if everything happens online.

If any of those concerns are holding you back from using the ERIKS Webshop, then there are several options that offer a convenient halfway house.

The ERIKS ePDF system, for example, works with your existing ERP and paper-based processes. Simply send you PO's as a PDF to ERIKS, and they'll be converted to an electronic order placed directly into the ERIKS system for fulfilment. This eliminates keying errors and increases the speed and efficiency of the whole ordering process

A step further is the new Quote to Order (Q2O) feature. Any quotes raised by your local Service Centre team will be added to your new quotations section of the Webshop. From there you can view, select and order any item quoted by ERIKS.

Your processes won't change, but the amount of time you waste managing your supply chain will reduce.

Can we quote you on that?

If you're ready to save even more time, there's the ERIKS Webshop Request for Quote facility. Because even with 250,000 products in the Webshop, sometimes you'll want one that isn't.

However there's no need to waste your valuable time trying to track it down. ERIKS will do it for you.

Make an online Request for Quote (RFQ) and ERIKS will quickly locate the part you want, from a reliable, cost-competitive source. The quote will be uploaded to your Webshop portal, and if you're happy with it you can place your order online in the usual way.

If you don't have a product reference or part number for the item you want, simply upload a photograph or CAD drawing with your RFQ, and ERIKS' technical specialists will use their know-how to identify the part and find the replacement you need. If they find equivalent

WEBSHOP
shop.eriks.co.uk

or better options available which could save you money or improve energy-efficiency or productivity, they'll present those to you as well, so you can make an informed choice.

The same wealth of expertise, depth of information and breadth of choice will also soon be available to help you make more effective electric motor decisions.

> "Increase the speed and efficiency of the ordering process"

Now you're motoring

When a motor breaks down you can often be faced with the choice of repair or replacement. Choose the replacement option and there are more decisions to make. For example, do you make a like-for-like swap or do you take the opportunity to upgrade?

The Motor Calculator – part of the assisted selection functionality coming soon to the ERIKS Webshop – guides you through the selection process by asking the right questions to help you make the right choice.

You fill in your motor's spec. and your operational parameters, and the calculator presents you with fully-costed options for repair, replacement, or an upgrade to a more efficient motor (if available), with relevant energy-saving statistics. What in the past could have taken hours of you time for phone calls or query emails can be completed in minutes.

> "All the information you need to make the correct decision"

The Motor Calculator doesn't make the decision for you, but it does give you all the information you need to make the correct decision for your particular circumstances. And because ERIKS can repair or replace, the information will be entirely solution-neutral.

If you're battling with a stalled production line, or simply optimising the management of your supply chain, then ERIKS Webshop is much more than an online shop. It's your online portal to greater efficiency, productivity and profitability.

Extensive Product Range

We offer a continuously growing portfolio of over 250,000 products.

Intuitive Ordering System

Fast. Efficient. Secure. Putting you in full control of your account.

ERIKS Know-How

Detailed technical, safety and installation information at the touch of a button.

Time Saving

Spend more time on making improvements and less time on sourcing and procurement.

Flexibility

A 24/7 ordering systems and we offer a range of delivery options.

Total Control

You can build in authorisation and approval process into your account.

Lifting the lid on the law

Andy Satchwell
Business Development Manager

For all businesses, safety in the workplace should be paramount. But that doesn't simply involve ensuring that the environment is fit for purpose. The equipment specified and used in every workplace is also required, by law, to be thoroughly inspected.

A Lifting Operations and Lifting Equipment Regulations 1998 (LOLER) thorough examination aims to confirm that lifting equipment is safe for continual use and that there are no signs of deterioration that could lead to any kind of failure.

With more than 200 years of specialist testing, inspection, training and certification to their name, Lloyds British are a leading authority in this field, and advise that the deterioration factors leading to equipment failure are wide and varied, including:

- The equipment's environment
- Nature and size of load
- Frequency of lifting
- Equipment condition
- Operator training and competence
- Maintenance regimes
- Historical evidence of performance and repair

> "LOLER inspections are mandatory"

Competence is key

LOLER inspections are mandatory, and responsibility is placed on duty holders – or a 'competent person' – to ensure that their on-site equipment undergoes regular and extensive inspection.

A 'competent person' is defined as:
"A person that has such appropriate practical and theoretical knowledge and experience of the lifting equipment to be thoroughly examined as will enable them to detect defects or weaknesses, and to assess their importance in relation to the safety and continued use of lifting equipment."

The term 'competent person' doesn't only apply to the engineer carrying out the inspection, but also the company that employs them. There is a legal obligation to ensure that both meet the necessary requirements. Therefore it's advised to employ an Inspection Body holding accreditation to BS ISO 17020.

> "There are two types of inspections"

What's the difference?

There are two types of inspections, completed at different phases of equipment lifecycle – Initial Thorough Examinations and In-Service Thorough Examinations.

During Initial Thorough Examinations, lifting equipment must be extensively examined prior to being placed into service. However, there are exemptions, and in cases when your lifting equipment comes with an EC Declaration of Conformity – issued less than 12 months previously – the initial examination is considered satisfactory.

Regulation 9(2) of LOLER explicitly deals with equipment whose safety depends on installation conditions. Any change to the installation, would also require a further thorough examination before it could be put back into service.

> "First agree with the manufacturer"

Further testing may also be required following the initial inspection to ensure that the equipment in question can sustain the necessary strength and stability for safe working. Before completing any testing, it's also advised to first agree with the manufacturer, to avoid applying forces that the equipment is not designed for.

While some equipment only poses trivial risks when failure occurs, most lifting equipment failures lead to disastrous outcomes. Therefore, In-Service Thorough Examinations, require all lifting equipment that can deteriorate to dangerous situations to be thoroughly examined periodically.

any lifting equipment, it's always worthwhile checking that it has undergone the relevant testing and certification. Remember, your safety is your employer's priority.

If you're unsure of any of the regulations, contact your local ERIKS Service Centre to speak with one of our knowledgeable team.

What is LOLER?

The LOLER Regulations came into force 1988 and were made under the Health and Safety at Work etc. Act 1974 (HAWASA). Applying to ALL situations and premises covered by the HAWASA, and further builds on the requirements of the Provision and Use of Work Equipment Regulations 1998 (PUWER).

While LOLER only applies to lifting equipment, the safety of similar types of equipment can be ensured by implementing the same procedures recommended by the Regulations. Additionally, even though LOLER specifically applied to lifting equipment, you still have a responsibility to meet your obligations under PUWER.

> "The frequency of in-service examinations varies"

The frequency of in-service examinations varies dependant on the type of equipment, and the level of risk posed to operators and the general public. When deterioration can lead to unsafe conditions:

- Equipment must be thoroughly examined at least every six months if lifting persons, or if deemed an accessory for lifting. All lifting equipment should be subject to inspection at least every 12 months.

Or

- The examinations may be carried out in accordance with an examination scheme stipulated by a 'competent person.'

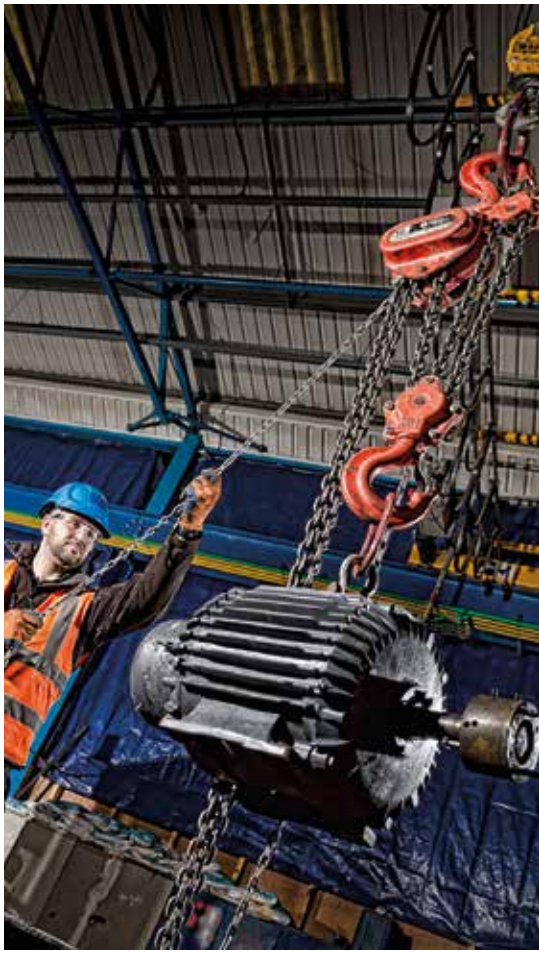
However, there may be scenarios where the level of risk is so high, that the competent person may suggest more regular examinations.

Making a mark

All lifting equipment, including accessories, should be clearly marked to indicate their 'safe working loads.' And where equipment is used to lift people, the amount of people should also clearly be stated.

Records should also be kept of all thorough examinations undertaken, and where defects are identified, these should be immediately reported to the persons using the equipment, the company from whom it's been hired, and potentially the relevant HSE authority.

It's vitally important that all equipment is thoroughly examined to harness a safe and productive environment. But before using



When the ratings get tough...

Steve Brady
Sales Manager, Intelligent Air Solutions (IAS)
MANN+HUMMEL

…the tough get better. That's the thinking behind the latest evolution of the compact air conditioning and ventilation air filter from MANN+HUMMEL, which – according to the new, tougher, Eurovent ratings – is the most energy-efficient you can choose.

It's over a year since the ISO EN 16890 standard for air filter efficiency was introduced. With this has come a newly updated definition of the energy ratings from Eurovent, according to the ISO efficiency classes. This makes it easier for you to choose the filter that provides the level of air cleanliness you need, with the lowest possible energy consumption.

This has resulted in some existing filters being re-rated as a result. In fact, around one in seven of all air filter products will be downgraded from the previous A class energy rating, although their performance hasn't changed. It simply means you can now identify a filter with even greater energy efficiency, by looking for a higher-rated model.

And for the highest-rated in class, you don't need to look any further than the new MANN+HUMMEL Aircube Eco 4V ePM1 60%.

High filtration...

Choosing the right air filter can sometimes seem like a balancing act between filtration efficiency and energy efficiency.

The higher the level of filtration, the greater the resistance to air flow, and the harder the ventilation fan has to work. This increases the demand for energy – ultimately increasing CO^2 emissions and your carbon footprint.

The problems arise when a balancing act turns into a compromise, and either your filtered air quality or your energy bills suffer as a result. But now the new Aircube Eco 4V ePM1 60% from MANN+HUMMEL allows you to have the best of both worlds.

> "You can choose to be energy efficient"

This compact Aircube model is designed for the filtration of ambient and recirculated air entering buildings and processes, and conforms to the ISO 16890 filtration standard. This standard has been established to give a rating more relevant to real-life operating conditions, in line with Particulate Matter sizing and the effects of particulates on health. So filters are tested against a range of particle sizes from 0.3µm through to 10µmm and then categorised into one of four grades:

- Coarse (filtering less than 50% of PM10 particulates)
- ePM10 (minimum of 50% or more of PM10)
- ePM2.5 (minimum of 50% or more of PM2.5)
- ePM1 (minimum of 50% or more of PM1).

As its name suggests, the Aircube Eco 4V ePM1 60% is in the finest filtration ePM1 category – and with no compromise on energy-efficiency.

...low energy use

The updated energy ratings for filters are based on annual energy consumption in kWh. Although the change of rating structure obviously hasn't made filters any less efficient, it has highlighted those which are comparatively more or less efficient than others.

Only 5% of filters are graded A for energy efficiency, and only 1% are graded A+. The MANN+HUMMEL Aircube Eco 4V eMP1 60% is one of that one percent. But what do the different gradings mean in terms of your actual energy consumption and energy bills?

One example is that a B-rated ePM2.5 filter could use the same amount of energy as an A+ rated ePM1 filter – yet provide a lower level of filtration. So, based on ISO EN 16890 it makes it far easier to judge filtration efficiency and energy-efficiency together, and make the best decision to achieve your filtration requirements with the lowest possible energy consumption.

> "Choose to have a clean and hygienic operating environment"

> “Planned maintenance before hose problems reach a head”

A clean sweep

Clean air is important, but in some operating environments – such as the pharmaceutical and food industries – there are additional considerations when choosing filters, to satisfy more stringent hygiene standards.

The MANN+HUMMEL Aircube Eco compact filter not only offers exceptional filtration but also satisfies many of these additional requirements.

It conforms to VDI 6022 hygiene standards. It meets FDA requirements for use in food and drug manufacturing environments. Materials used in the filter are free from animal derived ingredients (ADI-free). And they meet the requirements of ISO 846 regarding the growth of micro-organisms.

Last but not least, the Aircube Eco 4V eMP1 60% meets the EN13501 E d0 fire protection standard.

So you can choose to effectively filter the air in your air conditioning and ventilation systems for your buildings and processes. You can choose to be energy efficient. You can choose to have a clean and hygienic operating environment. And you don’t have to compromise between them. Simply choose the MANN+HUMMEL Aircube Eco 4V compact air filter.

Mark Carpenter
Product & Sales Manager Industrial Hose
ERIKS

Andrew Dawes
Product Manager Hydraulics
ERIKS

Not every vehicle with hoses is a fire engine...

If a vehicle with hoses turns up at your site, you don't want it to be bright red with sirens. But if it's the ERIKS Hose Asset Management service van, there's no need to panic. It's there to make sure it's not your money going up in smoke.

When they're poorly maintained or managed, industrial and hydraulic hoses can lead to problems ranging from energy inefficiencies, unplanned downtime and lost production, to catastrophic failure, environmental contamination and even critical health and safety risks.

> "Fully understand your hose assets"

But arriving at your site with a van loaded with equipment, hose and know-how, ERIKS can help you to take care of a vital part of your production processes. A part that's often the weakest link, and often overlooked until it's too late.

Know your hoses

Maintaining your hoses in good condition starts with knowing what hoses you have, and where. Only when you fully understand your hose assets can you establish a planned maintenance and management scheme to keep them in optimum condition.

“Planned maintenance before hose problems reach a head”

And when a hose or hoses need replacing – either as part of a planned maintenance regime or in an emergency – then knowing your hoses will help the engineer to know which replacement to bring, so production can be back up and running much faster.

However, when ERIKS' application engineers attend a customer's site, all too often there's no-one with a proper overview of hose assets. So part of the ERIKS Hose Asset Management chargeable service is a comprehensive review of your industrial or hydraulic hose.

Cool under pressure

For your industrial hose, our engineers carry out a visual inspection, and electrical conductivity and pressure tests. Sizes, pressures and temperature ratings of hoses throughout your site will be accurately catalogued, and a printed report provided – identifying hoses which have passed, and those which need replacing.

And if you take advantage of ERIKS' cloud-based Hose Maintenance System, you'll be alerted in good time when the hoses are next due for testing, and the ERIKS van will arrive with a test rig, ready to pressure-test your hoses on site.

At the end of testing, and after any necessary replacements have been made, ERIKS will also provide the appropriate certification.

Maintain, manage, manufacture

For your hydraulics systems it's different hose, same problems. Most customers are unaware of the age and condition of their hydraulic hoses, and unsure which hoses do what.

As a result, instead of hose maintenance they have hose emergencies, where an oil leak can mean unplanned downtime and an expensive emergency call out at best, or an environmental or health and safety incident at worst.

ERIKS' answer is to undertake planned maintenance before hose problems reach a head, by putting a hose control solution in place. The planned maintenance can be carried out during a scheduled shutdown, for example, when all hydraulic hoses can be assessed, reported on and replaced if required.

Hose Lessons Learned

The best place to find out about taking care of hoses isn't on the factory floor when there's a problem, but in the classroom.

In association with the British Fluid Power Association, ERIKS offer a useful training course entitled Working safely with hydraulic hose and connections. A foundation course covering best practice and real-world operation, it's the ideal starting point for helping you to better manage your hose assets for long-term efficiency and safety.

“Different hose, same problems”

The fully-equipped ERIKS Hose Asset Management van makes the process faster and more efficient, by carrying a comprehensive stock of hoses on board, and by coming equipped with the necessary tools to cut and crimp replacement hoses on site.

The next step is a comprehensive hose review, providing information as the basis for putting an hydraulic hose asset management system in place. The review will assess age, condition and function of all your hydraulic hoses, and tag them with colour-coded tags: green, for assessed as safe until the next survey; red, for replace as soon as practicable.

With all your hoses catalogued and placed on a personalised Hose Asset Management database, all future maintenance can be carried out to a plan, with the support of the ERIKS hose van. And no need for sirens.

Tread carefully to avoid slip-ups

Paul Skade
Category Manager, PPE & Site Safety
ERIKS

Research has revealed that slips, trips and falls account for over 30% of industrial accidents, and up to 50% of accidents in the home or public places.

Simple precautions such as controlling the condition of the floor, good housekeeping and issuing appropriate footwear, suited to the type of floor, should be taken to prevent such situations, but in reality, there's very little to you do to stop aquaplaning across a slippery surface.

One such way is to select a shoe that can channel liquid into the grooves of the tread, allowing the outer surface to grip the floor more effectively.

> "Slips, trips and falls account for over 30% of industrial accidents"

Are shoes like car tyres?

To put it simply. Yes. Just like the structure of a car tyre, the tread on a shoe disperses liquids through its grooves reducing the risk of slipping. The best anti-slip footwear has lots of smaller cleats, pushing the liquid into the gaps and gaining better grip on the surface.

All safety footwear, under EU Regulations, should be tested to EN20345, which includes a test using a Satra designed machine that clamps the footwear in a last and lowers it vertically onto a tiled surface to replicate the weight of a person. The tile is contaminated (with soapy water for SRA rating, or Glycerol for SRB rating) and then dragged across the horizontal plain, with the resistance being measured and converted into a Coefficient of Friction (CoF) reading. If the shoe passes both SRA and SRB test, it is classified as SRC.

Over the years, this methodology has come under a lot of scrutiny, as it's felt that the dynamics of a typical walking action are not closely replicated. It has also been noted that the pass levels required aren't sufficient to represent the conditions in the real world.

Following years of investigation, the Health & Safety Executive adapted their 'ramp test' apparatus to evaluate the competence of footwear more accurately, revealing that current methods fell short of predicting performance.

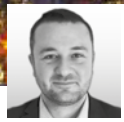
New method. Better results

The HSE has introduced an optional 'Grip Test', using the ramp under a stricter set of conditions. This new method involves a person wearing a pair of safety shoes to walk up and down the ramp. The surface of the ramp has a fixed CoF and is continuously contaminated with a glycerol and water mixture. The ramp is then gradually elevated, increasing the need for greater friction, until it reaches an angle that causes the operator to slip. But of course, the operator is equipped with protective harnesses.

The angle of the ramp is measured and converted into a CoF value, and the test is repeated until a truly reliable average can be determined. Each shoe is then given a star rating dependant on its results. To put it simply, the higher the star rating, the higher the slip resistance – 1 = low, 5 = high.

Selecting the most suitable footwear for the environment can only really be determined by undertaking a full risk assessment. ERIKS supply a range of footwear that has been tested to such high standards.

How joined-up thinking keeps you safe



Mark Carpenter
Product & Sales Manager Industrial Hose
ERIKS

Think about the threat of life-changing injuries, and it's risks like explosions, falls from height and corrosive chemicals that are probably your first thought. But hose couplings? Maybe not even on your list. Yet imagine being hit by a jet of compressed air, or a liquid, at a pressure of 10 bar/150 psi. Suddenly your choice of hoses and couplings becomes critical.

While hoses can leak or split, the weakest point in any hose system will always be the connection. So to make it as safe as possible, the R&D team at Goodall® have developed DuraCrimp® Utility. It's not just a coupling method, but a complete crimping system. With Goodall hoses, Goodall couplings and Goodall ferrules designed specifically to work together, the DuraCrimp Utility system gives you a completely secure, leak-free connection.

It starts with the hose

Whether you need a hose for air, water, aqueous solutions, oil, petroleum or diesel, Goodall DuraCrimp Utility hose is the multipurpose hose for the job.

Both hoses in the range are made from high-quality rubber compounds, with a cover that's highly resistant to wear, ozone and weather – even at higher temperatures. Reinforced with durable polyester, they have a high tensile strength and a high working pressure of 20 bar / 300 psi, depending on the hose type. Burst pressure is more than 80 bar / 1200 psi.

Their high kink-resistance is combined with great flexibility, and both hoses are manufactured and tested according to ISO 1402. Titon Black, in diameters from ¼" to 1½", is designed for transporting air, water and aqueous solutions , while MultiServ (1/4" to 1½") is also suitable for oil, petroleum and diesel.

Because liquid moving through a hose can lead to a build-up of static electricity and a spark risk, both hoses in the DuraCrimp Utility range are fully electrically-conductive. Any electrostatic charge is conveyed to the metallic hose-end connections, where it's safely grounded.

Fittings that fit

The only way to ensure that any connection will be leak-free is by choosing hoses, fittings and ferrules specifically designed to work together.

Goodall DuraCrimp Utility fittings and ferrules are designed for a perfect secure connection to both types of Goodall Utility hoses. Simply pick the hose you want, choose the compatible coupling, and crimp to the specification given in the Goodall crimping tables.

Goodall DuraCrimp couplings and ferrules are more environmentally-friendly too. Chromium-6 plating on many other fittings can act as a carcinogenic and cause allergic reactions on skin contact. All Goodall DuraCrimp Utility fittings use Chromium 6-free plating, but offer enhanced corrosion resistance.

With easy leak-free fitting, electricity conductivity, and chromium-free plating, the Goodall DuraCrimp Utility system is the game-changing way of avoiding life-changing risks from your hose systems.

Share and share alike

Does the cure to ageing assets lie in better planning?

I think it's fair to say that historically things were built to last. Honestly, I'm not quite sure we can say that with so much confidence today. You'd be surprised how quickly customers report obsolescence issues to us, even in plants under 10 years old.

Nevertheless, in the past, things were slightly different. Just look at some of the most iconic structures in the UK. They're still standing. And strong. But although they were built with solid foundations and high engineering standards, at some point in their life, they've undergone their fair share of maintenance.

The deterioration of assets in unavoidable. Just consider the strenuous nature of today's manufacturing processes. But in spite of the fact that manufacturers intend for their products to fulfil long and prosperous lifecycles, many do not reach that projected figure. Plants are therefore struggling to maintain the high levels of operation expected.

> "Understand what is critical. Maintain what can break"

Multiple reasons can be held accountable – poor design, incorrect installation, under par repair and maintenance, human error, equipment obsolescence. Take your pick.

What we can tell you though, is no single asset will last forever, or at least you shouldn't believe it can. Even with correct installation and regular maintenance, there will inevitably be an end of life. And you must be prepared.

Good preparation starts at the very beginning, with a carefully designed strategy. Be proactive. Ensure your engineers are fully trained. Schedule regular maintenance and stick to it. Raise awareness on obsolescence. All these will assist in ensuring your asset base reaches it potential – consistently, in the future, and beyond.

We know that obsolescence is a complex subject. But it's one that manufactures must, now more than ever, learn to understand. The key really is to know your equipment. Understand what is critical. Maintain what can break. And PLAN.

The fact is, there's no problem with using ageing equipment. Far from it. But the real issue lies in what we do behind the scenes. It's the plans we have in place, for example

> "Good preparation starts at the very beginning, with a carefully designed strategy"

a spares strategy, that will determine the effectiveness of operating with such equipment.

We'll leave you with one thought. Treat your equipment just like a person. It likes to be loved. Not just used. The more love it's shown, the better an asset will age. But when the time comes, and the inevitable strikes, with the right strategy in place, switching out without disruption will be the reward you reap.

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