ERIKS

KNOW + HOW

ISSUE 34

PLANT ROOM

In many industries the heart of the factory is the plant room, its also one of the biggest sources of energy consumption.

We take a peek behind closed doors at some of the innovative solutions that will help keep your factory floor running smoothly.

Introducing Excelon® Plus
The latest generation of Air Preparation equipment

Tamper proof options built in
Padlock features on both shut-off valves and regulator
Guarantees safe isolation of machines

Rotating Safety Shut-off Valve
Quater turn easy to operate full flow device
Easy to isolate system with no reduction in performance

No compromise on Robustness
Metal construction – where it matters most
Quality synonymous with IMI Norgren brand

Flush mounted integrated gauge
Largest in the industry
Easy to read
Less vulnerable to damage

Double safety lock on bowl
Bowl clip that clicks, plus safety detent when pressurised
Impossible to remove the bowl when in use

Easy filter maintenance system
Element is removed together with the bowl for faster and cleaner servicing
Best in the market with only 25mm bowl clearance required

Best in Class Water extraction
98% at 100% flow
Compared with 87% on average for most other filters

Compact size and optimised weight
Maximises machine real estate
35% lighter 20% smaller than Excelon 74

IMI Precision Engineering

IMI NORGREN®

Welcome

In this issue, we're delving into the wonderful world of the plant room, manufacturing's oft-neglected feature. In truth, the plant room does much more than house a boiler – it's the engine that powers the electrical, water, hydraulic and pneumatic energy required to keep a factory floor humming.

What better way to celebrate the underdog of your facility than an in-depth look at some of its most treasured secrets? You can re-discover all the hidden gems of a plant room, and why valves, lubricants and motors could hold the key to next-level efficiency. We also take a look at how an engineering survey can help organisations to make the jump from run-to-fail to predictive maintenance, without the installation of expensive, all-encompassing smart monitoring solutions.

Discover how one water and wastewater company went from near-constant human monitoring of its power supplies, to automated analysis via ERIKS' smart e-Connect Series 3 system. The stakes were certainly high: with failure possibly leading to an overflow of raw sewage, this was certainly no time to poo-poo the situation (sorry).

In addition to these, we have our usual debate piece, which analyses the lessons learned from the Cambridge Analytica scandal, and why developers of Industry 4.0 solutions will need to have data security front-and-centre in any new projects or technologies.

As usual, we hope you enjoy the issue, and would love to hear from you regarding any of the content. Share your top tips for plant room efficiency with us via email, or check out our website for more news, views and blogs from across ERIKS' range of products and services.

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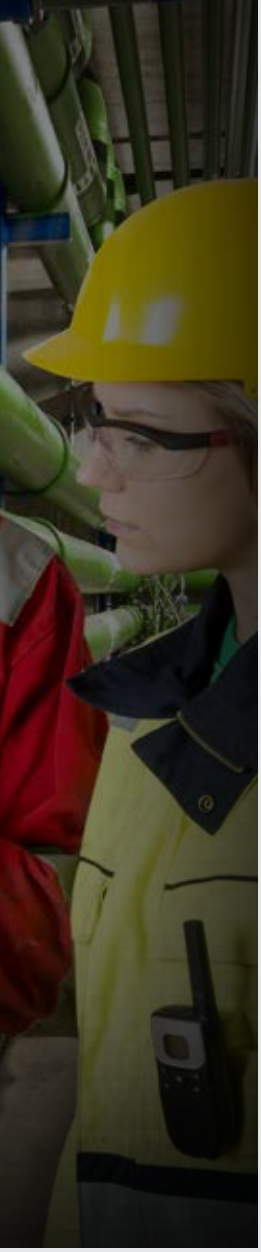


MAKING INDUSTRY WORK BETTER

54 DEBATE

Exploring the pros and cons of data security and it's impact on manufacturing, which, according to IBM, is the most frequently hacked industry sector

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

43% OF FIRMS BELIEVE BREXIT IS HAVING A **POSITIVE IMPACT** ON THE ECONOMY

According to the Lloyds Bank Commercial Banking's Manufacturing Barometer, which questions more than 240 manufacturers, four in ten (or 43% of) firms believe that Brexit will have a positive impact on their business.

What's more, just over half (or 52%) of firms in the sector expect to increase staff numbers in anticipation of increased workload and claimed that they felt more positive about the UK economy than they had done this time last year. The manufacturing industry's hiring intentions are ahead of other major sectors including construction, financial services, and retail.

Manufacturers also reported that wages are set to increase, with 84% planning to award pay rises over the coming year.

FEWER EMPLOYEES TAKING TIME OFF DUE TO SICKNESS, **ACCORDING TO EEF SURVEY**

EEF's latest Sickness Absence Benchmark, an annual survey of sickness days by employees in the manufacturing industry, has revealed that the overall absence rate dropped in 2017 to 2.2%, down slightly from 2.3% in the previous year.

The average number of days a year lost to sickness absence per employee also declined slightly to five, down from 5.3 in 2016.

There was also a difference in the number of sick days depending on sector, company size, and whether a role was manual or non-manual. The rubber, plastics and chemicals sector, for example, had the highest number of days absent at 5.5, while the metals sector scored the lowest at 4.7 per employee in 2017.

NASA AND UBER TEAM UP FOR **URBAN AIRSPACE MODELLING**

NASA and Uber have teamed up to explore the technologies and challenges related to Urban Air Mobility (UAM).

Uber will be sharing details of its Uber Levitate Network, an urban aviation ridesharing service that was announced in April 2017.

In its first agreements, which are specifically focused on UAM modelling, NASA will use Uber's information to create airspace management simulations and models to test the interaction of urban VTOL (vertical take-off and landing) passenger craft and fleets of delivery drones in crowded urban spaces.

NASA has stated that any data generated from the simulations will help to shape industry standards and Federal Aviation Administration (FAA) regulations.

URGENT CALL FOR SAFETY TRAINING IN **HIGH VOLTAGE ELECTRIC CARS**

The Institute of the Motor Industry (IMI), which oversees training and standards across the UK's garage network, believes new laws should be introduced to ensure mechanics are sufficiently trained on safe working with eco cars and their high-voltage electrical systems. This follows an announcement by the Government, which recently stated that every new car on sale from 2040 must be either electric or hybrid.

The IMI currently certifies around 100,000 people a year though its training programmes, but few are trained to work on electric cars and hybrids, many of which have electrical systems that can operate at several hundred volts.

According to the IMI, stringent regulation in Germany already protects technicians by ensuring that all garages are ready to take advantage of the move towards electrified vehicles.

SMART FACTORIES COULD SEE CAR MANUFACTURERS **GAIN $160BN**

According to research by Capgemini's Digital Transformation Institute, almost half of automotive businesses already have a smart factory initiative in place, with many investing more than $250m in smart factories, a level yet to be met by any other sector.

The report revealed that automotive manufacturers expect 24% of their plants to be classed as "smart factories" by the end of 2022. The report also highlighted that automotive manufacturers investing three-times more than other companies are making the most progress, with the rest falling behind.

The research indicates that OEMs are leading the way when it comes to smart factories, but that financial support and collaborating on innovation could help more suppliers to adopt smart factories.

HYGIENE **HIGH STANDARDS**

90% of bacterial contamination is caused by poor hygienic design. So the Fenner® range of Hygienic Geared Drives offers your best opportunity to maintain the high standards of cleanliness demanded in your food, beverage, pharmaceutical or process operations.

Completely interchangeable with any existing motor population, the Fenner® Hygienic Geared Drives range provides a simple upgrade offering up to 15 times longer service life.

Even in areas where wash-down duty applications involve acid or alkaline solutions, the range's chemical-resistant stainless steel AIS1304/316, with its electrolytic polished surface, will remain uncorroded and hygienically clean.

Cleanliness to the highest standards is also aided by the smooth, free-draining surfaces of the drives' design, with no indentations or catchment areas where dirt can accumulate.

Even the specifications are etched onto the surface rather than onto an ID plate, so dirt and bacteria have no hiding place on these drives.

FESTO'S **SIMPLY FASTER** POPPET VALVE

The Festo Blue Star core pneumatics range now includes a new VUVS poppet-operated valve, with up to 58% faster switching times than its spool valve equivalents. That means it's ideal for applications where responsiveness is key.

Poppet valves' simple construction makes them particularly suitable for applications where contaminated air may be present. With no lubrication required, they eliminate problems with chemical compatibility due to lubricated compressed air. And less friction during operation ensures more consistent performance and repeatable switching times.

A double 3/2 function allows for two valves to be combined in a single body, which is a valuable space-saving benefit.

Available in standard and ATEX Zone 2-certified versions and three port sizes (1/8", 1/4", and 3/8"), the new Festo VUVS poppet valve gives OEMs, machine builders and specifiers simply more options, more speed, more benefits and more choice.

GIVE LOADS **A LIFT**

A new series of multi-stage telescopic hydraulic cylinders from Enerpac make it quicker, easier and safer to move loads further.

With a capacity of 14-31 tons, and a stroke of 270-600mm, the new cylinders eliminate the need for temporary cribbing. Double- or triple- wear bearings support the lifting stages, and provide an unparalleled sideload resistance.

The 1st stage of operation delivers maximum load capacity at the lowest maximum stroke. The 2nd stage is an extended stroke but at lower maximum capacity than stage 1. The 3rd and final stage is maximum stroke extension but the lowest maximum capacity. Meanwhile a full-load capable stop ring prevents plunger overstroke.

With a steel cylinder base for maximum strength, the cylinders have a nitrocarburized coating inside and out, providing maximum corrosion protection. This makes them ideal for use in the harshest conditions.

Incorporating integrated lifting eyes for safe handling and positioning, the new telescopic hydraulic cylinders comply with ASME B30.1 and EN1494 design safety standards.

ELECTRICAL SAFETY IN **YOUR HANDS**

C.K. Tools' research amongst professional electricians revealed that most carry a non-insulated stubby screwdriver. Despite understanding the importance of using insulated tools, they often resort to this when an insulated screwdriver won't fit.

To overcome the problem, C.K. Tools have created new C.K. Stubby VDE Slim Screwdrivers.

Their shorter length makes them ideal for use in confined spaces – and their full Verband Der Elektrotechnik (VDE) approval provides the assurance that each screwdriver is individually tested and certified to 10,000V, for safe working up to 1,000V.

The premium quality blades are engineered from chrome vanadium steel for exceptional strength and durability, while the slim shaft allows access to recessed screws and fixings. In addition, anti-roll flats prevent the screwdriver from rolling off sloping surfaces.

Manufactured in Germany, the C.K Stubby VDE Slim Screwdrivers are available in four key tip types: the essential PZ2, 4mm and 5mm slotted sizes, and Modulo (+/-) 2.

UPGRADING YOUR CONTROL SYSTEM IS EASIER THAN YOU THINK

With the Industrial Internet of Things creating almost limitless new opportunities, your control system needs to be ready to take advantage. Upgrading to the Modicon M580 ePAC smart connected controller will make sure you are.

With Unity Pro, the Modicon M580 ePAC offers a smooth and seamless step-by-step modernisation of your existing Modicon Quantum and Premium I/O systems and programs. So however large your installed base, you can fully protect your investment.

With new and enhanced capabilities for better performance and availability, enabling faster reaction to information, the new PLC will help you reduce time to profit, improve reliability and sustainability, manage operating risks, and – with a 5 times faster scan time – improve process efficiency.

The Modicon M580 ePAC offers better connectivity, greater security against external threats to your process, and a reduced Total Cost of Ownership. So you can upgrade your control system, and downgrade your costs.

IN **DEPTH**

DON'T JUST **SIT ON YOUR ASSETS**

Steve Askins
UK Engineering Director
ERIKS UK & Ireland

The way manufacturers operate their assets is changing. At least, it is for those that want to optimise their efficiency and maximise their productivity.

From the bad old days of "Run to Fail", and even the more enlightened Condition Monitoring approach, many forward-looking manufacturers are moving towards Predictive Maintenance of their assets. Which is where an ERIKS Engineering Survey can help to make every asset earn its keep.

For you, "asset" equals equipment and machinery. For ERIKS, this means the delivery of a range of services from audits, site services, maintenance activities and training. They're the key elements of the ERIKS Asset Management Service, which can help you to identify critical assets, keep them operating with maximum uptime, and reduce their Total Cost of Ownership.

Spot the asset

You probably know what assets you have on your site. What you may not have is the foresight and insight including the knowledge of which ones are critical to your production, and how best to be prepared to maintain production should they fail.

An ERIKS Quick Scan – the first step in an Engineering Survey Audit – is an overview of your critical assets' strategy, policies and objectives. Ultimately, it will help you to decide if there's real value to be gained from an asset data-gathering exercise.

If the answer is "yes" then a Skim Survey of the relevant assets, to establish the time and costs involved in creating an Asset Register, is the next step. And if you decide to go ahead after that, then ERIKS' product, sector and engineering know-how really come into play.

NOT ALL CRITICAL ASSETS ARE OBVIOUS

For example, while some critical assets are obvious, others are less so.

Production line equipment will almost certainly be critical. But what about the pumps in your Plant Room? Or in your air handling units? They're not directly part of the production process, but their failure could still lead to production downtime. So identifying this kind of asset, and being aware of its criticality, is a valuable exercise. That's something ERIKS has the expertise to do.

The Asset Register will not only record all your critical assets, but also identify and record the:

- availability of spares
- asset condition
- obsolescent components
- risk of failure

And open up opportunities to

- increase engineering reliability
- increase asset efficiency
- reduce maintenance costs
- reduce running costs
- increase asset productivity

Good, better, best

Once your critical assets have been identified and assessed, experienced ERIKS' engineers can advise you on a whole range of options.

If the asset is performing as you want, ERIKS can offer maintenance options to ensure it continues that way. If its operating or maintenance costs can be reduced – through energy efficiencies or increases in Mean Time Between Failure, for example – ERIKS can show you how. If an upgraded motor, inverter or gearbox would increase efficiency, ERIKS can recommend the right one for the application.

IF A CRITICAL ASSET FAILS, THE SPARE BECOMES CRITICAL

But it's not only the operational assets which need to be assessed. If a critical asset fails, then the spare becomes critical. So it's essential to know that critical spares are stored in the optimum conditions and are fit-for-purpose. If not, ERIKS can recommend improvements. ERIKS engineers can also identify where there are gaps in your critical spares' inventory.

Sometimes the critical assets themselves are obsolete – in which case ERIKS engineers can advise on suitable up-to-date alternatives, which are also likely to reduce energy costs and increase efficiency and productivity.

The end result is that you will have the information you need to make the choices you want. Choices which will ensure your critical assets perform as you want them to: whether that's as good as they are, better than they are, or at the best they can be.

Masters of all they survey

An Engineering Survey is not just a matter of looking at assets. True effectiveness only comes from knowing which assets to look at, what to look for, knowing which questions to ask, and knowing what to do about issues that are identified or revealed.

That's where the know-how of ERIKS' engineers comes into play.

As well as relevant sector experience, they know how assets fail and why. They have the specialist technical knowledge to propose improvements. And they can help you to identify priorities, so you can make those informed choices to meet your objectives.

Then you can forget about "Run to Fail". Move on from Condition Monitoring. And adopt Predictive Maintenance practices that will keep your plant operating more efficiently and more productively. In other words: that will make your assets a real asset.

SAVING TIME SAVING COSTS SAFETY CONSCIOUS

LATERAL CRITICAL THINKING

Spotting truly critical assets can sometimes require a sideways look.

A food manufacturer customer, for example, operates a cooker/cooler which contains £¼m worth of product at any one time. The customer considers it a critical asset.

However an ERIKS Engineering Survey highlighted the fact that the product must be removed from the cooker/cooler within 20 minutes, or it will be irretrievably spoiled. This led ERIKS to identify the conveyor belt that emptied the product from the cooker/cooler as the truly critical asset.

ERIKS' experience of the motor unit which operates the belt suggested that it would be impossible to replace with a spare within 20 minutes. Therefore, installation of a double drive was proposed.

Now in the event of a drive failure, the conveyor belt will still move, the product will still pass through the process within the required time, and £¼m of production will be saved.

Information you need to make the choices you want.

SUPPORT FOR LIFE

Even the highest quality, best designed, most carefully engineered product won't last for ever. But with the right support it can have a far longer more productive service life.

ERIKS Technical and Engineering Services will help to ensure the product is always operating at its most efficient, with less unplanned downtime.

If a repeat failure should occur, our engineers see it as an opportunity for performance improvement. Using root cause analysis, instead of simply addressing the symptom, they will resolve the issue and prevent it from happening again or happening so frequently.

So rather than possibly saving pennies on the initial purchase price, with ERIKS Technical Services support for life, you can save pounds on maintenance, repairs and replacements.

PRODUCTS		SERVICES: Advise / Review			Implementation	Optimise / Monitor					Maintain				Full Service
		Application engineering/ problem solving	Training	Spares and maintenance strategy	Installation / commissioning	Process improvement/ TCO	Energy management	Condition monitoring	OnSite inspection	Testing & certification	OnSite maintenance	Lubrication	Repair	Replacement	Asset management
Bearings and Lubrication	Bearings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓
	Lubrication	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓
Power Transmissions	Open Drives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Closed Drives	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fluid Power, Transfer and Control	Industrial Hose	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Hydraulics	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
	Pneumatics	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓
	Filtration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓
Sealing and Polymer	Sealing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
	Gaskets	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓	✓
Flow Control	Valves	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Pumps	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tools, Safety and Maintenance	PPE	✓	✓	✓	✓	✓			✓	✓				✓	✓
	Tools	✓	✓	✓	✓	✓	✓		✓	✓		✓		✓	✓
	Electrical	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓	✓

THE CHALLENGE OF OBSOLESCENCE

Tom Boswell
Condition Monitoring Engineering
ERIKS UK & Ireland

The discussion around equipment obsolescence has for too long revolved around British industry's lack of obsolescence planning.

Even the most modern facilities can be quickly relying on equipment that is subject to maturity or end-of-life announcements.

Where older equipment is being used, it is often well-made, reliable and does not require immediate replacement. Based on recently commissioned research, we look at how UK manufacturing views its ageing asset base.

At a recent ERIKS customer day, an operations manager at one of the UK's largest bakeries made a very good point when it came to obsolescence. "We have," he said, "a lot of ageing equipment, but the thing is, it's very well made. We've got cast-iron flour hoppers that are much superior to their modern, stainless-steel equivalents. Why would we change them?"

This is the crux of the obsolescence issue. Ageing equipment is not necessarily bad: in fact, it performs more than adequately and has many years of operational life. The problem with ageing equipment is not age, but the potential for downtime to become significantly more critical due to the lack of spares availability.

We recently undertook a research project with the IET which surveyed 150 engineers from across UK industry, asking them specifically about obsolescence issues. The findings were surprising: it is not the case that UK industry has an ageing asset base, but that adequate provision has not been made to maintain it.

We first asked the engineers about the age of their equipment. 74 per cent of our panel stated that their facility contained equipment of more than five years old, with no parts or spares available in the event of a failure or fault.

As a result, downtime was often a serious issue. 38 per cent of respondents suffered from serious downtime incidents a few times every year, while 13 per cent underwent regular occurrences of severe downtime every month.

For less serious stoppages – from 30 minutes to two hours in duration – more than a third of respondents admitted to managing them up to five times every month. When you consider the time in aggregate, it's easy to see why preventing, rather than reacting to, such incidents should be an engineer's top priority.

A strategy for obsolescence

Ageing equipment is clearly an issue, but how proactive is industry in developing an obsolescence strategy?

We asked our engineers when they last undertook an obsolescence audit. The results were concerning, with 62 per cent admitting that they had never undertaken an audit or didn't know when the last audit took place. Only 21 per cent, little more than a fifth of respondents, answered that they had undertaken an obsolescence audit within the last year.

We also found that 70 per cent of respondents do not have an obsolescence strategy in place. The reasons for this are varied, but one of the most popular (according to 50 per cent of respondents) was budgetary constraints with the lack of maintenance resource (13%) also being a major factor. Interestingly, 16 per cent of respondents answered that a lack of awareness of the criticality of ageing equipment amongst senior management was also a significant issue.

The role of the factory store

One way of ensuring that the risks of obsolescence can be adequately managed is by co-ordinating factory stores inventory with the criticality of equipment. The ready availability of spares held on-site can reduce downtime and the requirement for engineers to be spending their time sourcing spares. Surprisingly, only 25 per cent of engineers say their organisations practice this type of co-ordination, with 54 per cent declaring that there is no co-ordination.

The results confirm our suspicion that that many companies deal with the obsolescence issue by stealing parts from other machines or cannibalising parts from assemblies in spares stores, rather than having a formal plan in place. This approach means that there is no documentation or corrective action to ensure that a more proactive policy is implemented in future.

Delivery times

If spares are not held on site, the ready availability is critical, but we found that 68 per cent of respondents did not know the delivery times of spares for critical or obsolete equipment not kept in their factory store.

This suggests that too many factories and industrial sites are operating with opaque, indirect supply chains and are at the mercy of critical equipment failure daily.

Of course, many factories and sites are using equipment which has no spares availability. We wanted to find out how common it is to use a reverse engineering service to change or redesign obsolete components in order to keep ageing equipment operational.

Nearly 49 per cent, half of the UK's industrial base, responded that they have used a re-engineering service. Our concern is that half of our engineers do not use such a service and almost certainly have no proactive obsolescence strategy, leaving them and their facilities highly exposed.

These are just a few of the findings from our latest report, The Challenge of Obsolescence. What follows next must be a concerted effort to ensure that these findings are acknowledged, and actioned, by industry.

SURVEY SAID:

A selection of views taken from our recent survey on obsolescence:

"The company motto is: 'If it's not broken, don't fix it. I work with some very old equipment. As soon as it breaks, it is replaced – first by hire, then by purchase – once the budget has been approved. It's a highly inefficient system."

"A lot of equipment becomes obsolete, not because it fails on a functional level, but because the OEM stops supporting it. This is both frustrating and unnecessarily costly. As a business, we have equipment that is either obsolete or unsupported, despite being less than seven years old."

"Our business relies on the maintenance team to find short-term solutions. When these are exhausted, the business requests a quote to replace the equipment but if this is too high, then the work must be budgeted in, which can add up to two years to the delivery of the solution."

To request a copy of the report, please visit: eriks.co.uk

Continental
The Future in Motion

CONTI® SYNCHROFORCE CARBON

Das Multitalent
The Allrounder

Power Transmission Group

ContiTech

IN **FOCUS**

DO YOU KNOW WHAT'S LURKING IN YOUR **PLANT ROOM?**

KEEPING BILLS FIRMLY PLANTED **A REFRESHERS GUIDE TO PLANT ROOM EFFICIENCY**

The plant room is often referred to as the "engine" of a manufacturing facility. It's easy to see why, considering it can house the heat, air and electricity needed to power a production line and its processes. The downside is: such a large amount of energy requires…well, energy - the supply of which is becoming increasingly expensive.

What's more, the plant room hides a number of traps and pitfalls that, if not properly managed, could see those hard-earned pennies lost to higher costs, lower efficiency and reduced production. We take a look at some of the plant room's key players that are easy to neglect, but impossible to ignore.

The gatekeepers

We all know about valves. They control the direction and level of flow, and come in a variety of shapes and sizes, from ball to butterfly. They can also cause sizeable losses for businesses if they aren't working properly, whether this be due to incorrect installation, lack of maintenance, or installing the wrong type of valve in the first place.

With so much choice available, it is often daunting to know which valve is the right one. Luckily, by working with an expert, you can benefit from extensive inventory, customisation and supply chain access to ensure that, whether refurbishing existing installations or specifying new ones, you make the right choice every time.

"When replacing equipment, choose quality parts that offer improved performance and reliability," Chris Dixon, Head of Sales for Flow Control at ERIKS UK & Ireland says, "a great advantage of the ECON Ball Valves and Butterfly Valves is the standard direct mount top flange according to ISO5211. This enables direct mounting of an actuator without requiring a mounting bracket and drive adaptor on top of the valve. This results in a considerable cost saving, a compact automated unit, and a higher level of safety for operators."

LOOKING TO ENHANCE EFFICIENCY FURTHER?

Consider investing in actuation technologies to automate valve opening and closing. AMG pneumatic actuators, for example, provide reliable, durable operation of ball, butterfly and multiport valves.

"If there's only low-frequency use, or a long standstill period, you can expect the valve to open or close reliably as required," says Chris. "If there's high frequency use with millions of cycles, the AMG actuator will go on working smoothly, time after time."

The power players

No engine functions without a motor, and a plant room is no different. As a vital source of electrical power, a faulty motor can cause costly downtime if left to deteriorate. It also consumes a large amount of energy, making it an expensive plant room asset. In fact, according to British Gas, 65 per cent of industrial energy consumption comes from electric motors. If there ever was a priority for an energy-saving programme, this is surely it.

"When your annual electricity bill is around £3 million, even a small percentage saving on energy costs represents a significant sum," says Nigel Jones, Sales Manager for Power Transmission at ERIKS UK & Ireland.

If you've been running a plant room with the same motors for a while, perhaps it's time to consider whether the motors you have could do with a tune-up or need replacing entirely. This decision isn't always an easy one, which is why calculating Total Cost of Ownership, based on running costs, purchase costs and the estimated cost of repairs, can help.

One Belfast-based automotive component manufacturer did just that, after identifying that electric motors accounted for around 70 per cent of its total energy costs. "ERIKS suggested the use of its web-based Total Cost of Ownership (TCO) calculator, which essentially gives a glimpse into the future, by showing the lifetime operational cost of any installed electric motor asset," Nigel says. "The calculator was set up for use,

enabling all appropriate personnel at the customer's site to calculate the annual running costs and CO_2 emissions of any existing motor, and to compare them with an IE3 (premium efficiency standard) replacement.

"To date, the customer has replaced 15 motors, achieving capital payback on all motors within two years. Savings so far total £100,000, and additional benefits include a reduced carbon footprint, which qualifies the customer for an enhanced capital allowance."

LOOKING TO ENHANCE EFFICIENCY FURTHER?

WEG's W22 IE3 range of electric motors have been designed to significantly lower energy consumption, while simultaneously reducing noise and vibration.

"W22 IE3 motors exceed the energy saving requirements set out by the EuP Commission Regulation 640/2009, which governs the eco-design requirements for electric motors," Nigel says.

"IE4 efficiency-rated motors are also available as a standard part of the W22 range."

The smooth operators

It's tempting to see lubrication as an after-thought. In actual fact, the right lubricant can go a long way towards reducing operating costs, boosting productivity, and extending the longevity of equipment. "Today's high-quality lubricants do more than simply lubricate," says Graham Wignall, Product Manager for Lubrication at ERIKS UK & Ireland. "They also aid fuel efficiency, extend component life, and even reduce environmental impact.

"The flipside is that lower-quality oils with a lower price tag can reduce fuel efficiency, shorten component life, and do absolutely nothing for the environment, which means that, in the longer term, those short-term savings on the purchase price are easily wiped out."

There are so many different types of lubricant out there. The one you choose will depend entirely on the process, the environment, the equipment and the handling material, which is why expert advice is always the best way to go. "All you have to remember is that, with cheaper products, the price tag only shows you the price, not the ultimate cost," Graham says. For added reliability and product quality, consider implementing frequent lubrication as part of a wider condition monitoring regime.

LOOKING TO ENHANCE EFFICIENCY FURTHER?

"Automatic lubrication is a time-saving, money-saving solution, widely used in many industries wherever lubrication is needed," Graham says.

"The Simalube® lubricator is proven to enhance equipment lubrication and when coupled with the Simalube® IMPULSE, can ensure sufficient pressure of up to 10 bar to supply lubricant to a distance of up to four metres. It can also be attached to any standard 60, 125 or 250ml Simalube® lubricator to release 0.5ml of lubricant as and when required, and can be used to dispense oils and greases up to NLGI 2."

The safety officers

Sure, motors and valves make up essential parts of the plant room, but there's something even more important to consider: the people who work there. Plant rooms are often noisy, busy places where workers can be exposed to a number of aggressive factors, such as high temperatures, respiratory contaminants and damaging levels of sound.

Protecting employees with the right Personal Protective Equipment (PPE) goes beyond ticking a health and safety box – it's also an investment into the productivity and longevity of the plant room and its operators. "PPE is a mainstay of many sites and operations up and down the country, not least in the industrial manufacturing sectors," says Paul Skade, Category Manager for Safety Products at ERIKS UK & Ireland. "It's not a one-fits-all solution, though. PPE equipment can come in a variety of sizes, and ill-fitting equipment can be as much of a health and safety concern as none at all."

As well as sizes to fit different body types, PPE has many varieties that differ based on application. "One pair of gloves can look very similar to another, yet the purpose can be varied, and safety can be called into question if the wrong pair is supplied," Paul says. "The same can be said for a number of items."

Navigating the potential minefield of PPE compliance can be difficult, which is why engaging with a specialist is always advisable. They can examine the application of each piece of equipment, and suggest the kinds of PPE your employees should be using.

LOOKING TO ENHANCE EFFICIENCY FURTHER?

Vending machines can make both the supply of PPE, as well as employee compliance, a lot easier.

"Vending machines provide access control via devices such as a dedicated employee swipe card, or key fobs," Paul says.

"They ensure that all employees are wearing the correct PPE, and that each and every dispense is recorded for greater accountability."

WHAT'S THE WORST THAT CAN HAPPEN?

Mark Jackson
Project Engineer,
Power Transmission,
ERIKS UK & Ireland

In many plant rooms, equipment problems can lead to a complete shutdown of production.

But for a major water and waste-water utility, that's not the worst that can happen. It's the fact they can't shut down production which is the problem.

The hardware provided for the task is the e-Connect Series 3 power monitoring system

Whatever is happening in their plant room, raw sewage continues to be produced. Even if the system has failed and can't treat the sewage, it's still being produced. Eventually, the worst-case scenario isn't production downtime and lost output. It's raw sewage being pumped into rivers or overflowing onto the streets, and multi-million pound fines for polluting the environment.

So intermittent erroneous tripping of motors and pumps at a major pumping station poses not only a diagnostic issue, but also a major health and environmental risk.

Looking for trouble

The potential problems resulting from an erroneous trip mean that the system requires continual monitoring, ready for an immediate reset in the event of loss of power. This relies on an employee permanently stationed in front of a control room console, watching for signs of a trip and ready to hit the reset button immediately.

It is a situation which clearly can't continue, and the utility company has spent many hours on site investigating possible causes of the trips, before deciding they need to call in the experts to pinpoint the problem.

So just over two weeks ago (at time of writing) they contacted ERIKS' Specialist Engineering, Greeford site, which in turn alerted ERIKS Electronic Services in Dudley.

Taking aim

The large number of items of critical equipment in the plant room make it impossible to utilise ordinary diagnostic techniques to identify the cause of the erroneous tripping. Instead, ERIKS has opted to use e-Connect to monitor a range of parameters.

ERIKS' experience and know-how has helped to identify harmonics, voltage, current and power factors as the most likely possible causes of tripping and – within those causes – the third, fifth, seventh, ninth and eleventh as the most important harmonics to monitor. This will provide a general view of the situation in the plant room, which can then be reviewed with the aim of narrowing the parameters and conducting more specific monitoring until the cause is finally accurately targeted and identified.

The e-Connect Series ranges from 1-5, where each model offers increased functionality. Series 3 not only provides status, measuring and trending functions but also – crucially in this case – has its own power supply. Without a built-in UPS, the equipment itself would trip out at the same time as the assets it is monitoring, preventing it from identifying the source of the trip.

However the hardware still needed some adaptation to the specific customer requirements. Fortunately, given the criticality of the customer's situation, ERIKS' in-house engineering skills and resources meant the bespoke unit was designed, built and despatched within just three days.

> "DESIGNED, BUILT AND DESPATCHED WITHIN JUST THREE WORKING DAYS..."

Not watching... just waiting

The unit was installed just over a week ago, so as yet there is no meaningful result – unless you count the fact there's no longer a need for an employee to watch a screen 24/7 in case of a trip.

Instead, personnel are notified immediately by text and email. Then, as the e-Connect Series 3 incorporates an automatic reset option, they can enable a remote restart as soon as they have carried out any necessary safety checks, such as determining there are no engineers carrying out work on-site. The restart can even be initiated from a mobile phone.

So ERIKS e-Connect hardware provides not just one but three major benefits for the customer.

Firstly, the plant room assets are being continually monitored, providing valuable data to help identify the cause of the tripping, and enabling a long-term solution once the precise cause has been isolated.

Secondly, the continual automatic monitoring frees an employee from the unproductive task of visually observing the plant room's operation.

And thirdly, the built-in remote restart function minimises plant room downtime: reducing the risk of a sewage leak, pollution and financial penalties.

All of which means that the worst that can happen, won't.

MAKING YOUR PLANT ROOM A NO WAITING ZONE

Andy Cruse
Technical Director
Flow Control
ERIKS UK & Ireland

Next time you need a made-to-order bare shaft pump set for your plant room, you can paint double yellow lines all around the floor. Because instead of the 8-12 weeks' wait you might expect for an engineered pump from most suppliers, ERIKS can provide the same asset in just 2-3 days.

By combining the resources and know-how of two Product Business Units – Flow Control and Power Transmission – ERIKS can provide you with a high-quality motorised pump unit, coupled to a motor gearbox and/or inverter, using high quality private brand and A brand components, to your exact specification.

This high-speed response is a result of intelligent stocking of a huge range of components, supported by in-house engineering expertise.

Made-to-order, off-the-shelf

Whoever supplies your basic pump set, the initial approach to the job is the same. It's simply a matter of combining components. What's different when ERIKS engineers your pump is that it's the components that are waiting, not you.

Other suppliers will almost certainly be ordering-in many of the components of a set – making them hostage to their own suppliers' lead times and leaving you in down-time limbo. Meanwhile ERIKS can be getting on with the job of building your bare shaft pump to order, in days rather than weeks.

> "IT'S THE COMPONENTS THAT ARE WAITING, NOT YOU..."

"BUILDING YOUR BARE SHAFT PUMP TO ORDER IN DAYS..."

That's because, waiting in stock and ready to go as soon as your order comes in, ERIKS has:

- £1.5m worth of gearboxes
- geared motors up to 55kW
- inverters up to 110kW

And these aren't just any components. They're from trusted partners such as Fenner (for drives) and WEG (for motors) who would often be the first choice of other suppliers too. But while they'd be on the phone ordering, ERIKS is on the job assembling.

Cracking the combination

Faster manufacturing of bare shaft pump sets is not only down to higher levels of stock and shorter supply lines. It's also down to more intelligent stocking and in-depth product and engineering know-how, that enable more flexibility.

The key is that all the possible components of a pump set – pump, motor, gearbox and inverter – are core to the ERIKS product offering, and therefore fully supported by extensive stock and equally extensive experience and engineering expertise.

For example, the performance envelope of a pump can be changed entirely depending on the size of impeller it houses. ERIKS has as many as 8 different impellers for some pump housings, as well as the expertise to calculate the optimum impeller and case combination to achieve the customer's required performance.

From end-suction centrifugal pumps to rotary lobe, flexible impeller and many other positive displacement pump configurations, ERIKS can adapt, customise and optimise in-house – and do it all in less time than competitor suppliers.

Making it special

Another advantage of ordering from ERIKS is that you not only get the pump set you need. You also get the pump set you really want.

So if you want special motor seals suitable for aggressive washdowns, that's what you'll get. If you want Industry 4.0 technology built in – like e-Connect for status monitoring – you'll get it. If you need vibration transducers already capped and fitted, or auto-lubrication, you can have them too, without delay.

If your pump set is for use in the pharmaceutical or food and beverage sectors, you can have your pump set complete with a suitably specified hygienic gearbox casing. If it's going into the water industry, you can have it built to WIMES standards. And you can choose a pump set comprising best-in-class components, or to conform to your particular site standards.

In fact, you can have whatever you want, and as soon as you could possibly want it. So why wait?

WHY YOU'RE THE MANCHESTER UNITED OF YOUR PLANT ROOM

Gareth Lenton
Director
Power Transmission
ERIKS UK & Ireland

Peter Townsend
Director
Bearings and Lubrication
ERIKS UK & Ireland

Man Utd. claimed to have over 650 million at the last count. You won't have quite so many. But just like Man Utd., you'll want them to go on supporting you, day in and day out. And though you're not looking to make money out of them with replica shirts, you certainly don't want them to cost you money.

We're talking about the fans. Not the football variety but the fans in your Plant Room. How can you keep them on your side?

Like many mechanical assets in the Plant Room, fans are often forgotten until they start to fail. By which time, lack of regular maintenance can turn a drama into a crisis, with a knock-on effect on processes or production, right through your site.

Ignore your fans and one day they'll get their own back. Take proper care of them, and they'll never let you down.

Here we go, here we go, here we go

At least fans provide an early warning if they're going to go wrong. Tell-tale signs of potential premature failure can help you to take preventative action and avoid lengthy downtime or catastrophic failure.

Although any fan will make some noise, will vibrate and will heat up, too much of any of those is a sign of a problem.

Excessive noise can result from poor alignment, which also places strain on other components such as bearings. Or it can be caused by excessive vibration, which is a symptom of a deeper issue. For example, a fan will vibrate excessively if the impeller is out of balance, or if the coupling is unsuitable and is failing to absorb shock loads as effectively as it should.

The third indicator of trouble ahead is a fan producing excessive heat. This is usually a sign of inefficient performance, and a symptom of a root cause such as a cross-located fan bearing.

> "TELL-TALE SIGNS OF POTENTIAL PREMATURE FAILURE..."

It needs the experienced eye – and ear – of an expert fan engineer to identify the exact cause from these warning signs, and then to suggest a solution: from rebalancing to a more suitable coupling choice.

However, there's no reason to stop at crisis management repairs. That's like Man. Utd. settling for a 0-0 draw instead of a 3-0 win. The expertise on offer from ERIKS Fan Services can help you go further to make your fans more efficient, more reliable, and easier to maintain: reducing your energy costs and increasing your uptime.

G-o-o-o-o-o-oals!

The goals for any asset are reliability and efficiency, and fans are no exception.

A more reliable fan system will need less unscheduled downtime for repairs, and with longer maintenance intervals will need less scheduled downtime too. A more reliable fan can also work harder, providing a higher throughput of air for your application. Lastly, reliability means longevity, and a longer-lasting fan will play a valuable part in reducing your Total Cost of Ownership.

> "MAKE YOUR FANS MORE EFFICIENT, MORE RELIABLE, AND EASIER TO MAINTAIN..."

Great saves

The more efficient your fan, the less energy it uses. And with energy costs massively outweighing the fan's initial purchase cost, an energy-efficient fan can help you reap real savings.

Regular maintenance is one way of ensuring efficiency – helping you to avoid the noise, vibration and heat losses already mentioned. But upgrading to the latest high-efficiency fans will reduce losses even further, as well as providing the throughput you need, with a lower operating speed: which in turn means lower energy use and more savings.

> "AN ENERGY-EFFICIENT FAN CAN HELP YOU REAP REAL SAVINGS..."

Fan-tastic

Getting the best out of your fans means getting the best advice and support – from fan drive selection to care and repair. ERIKS offer Total Fan Solutions, including an online calculator to help you choose the most efficient drive motor for your fan application.

To find out more, download the Total Fan Solutions brochure from the ERIKS website or contact your usual ERIKS Service Centre.

ERIKS IN ACTION

SPLIT DECISION

A production critical fan at a customer's site had an issue on the non-drive, fan end bearing. However, as the 4.5m diameter fan has a 200mm diameter shaft, and the bearing is around 6 metres from the end of the shaft, a bearing change is a major undertaking.

A like-for-like replacement of the two spherical roller bearings in bearing housings would entail removing either the fan (virtually impossible) or the drive end bearing, coupling and gearbox to gain access.

ERIKS' solution was to replace the solid bearing arrangement with a Split Roller Bearing. This allowed the failing bearing to be ground off the shaft and the replacement to be assembled in the same location with no coupling, gearbox or fan disassembly required.

TOTAL SUPPORT

A customer in the petrochemical industry was experiencing excessive unscheduled downtime of their Fin Fan Drives, which are required to work 24/7/365 with an expected service life of 4 years. They approached ERIKS to redesign the application, and ERIKS worked to provide a total fan and belt drive solution with:

High performance synchronous belts a back-drafting solution to increase the life of the belt drives, by minimising the shock load at restarts.

Satisfied with the proposed solution, the customer ordered drives for 10 Fin Fan applications as a test, with the potential for up to a 1,000 at the same site.

Whether you need adhesives, sealants, cleaners, tapes or sprays: LOCTITE offers a wide range of reliable solutions that raise your profitability, keep your equipment running smoothly and ensure the highest safety standards.

Thread Sealant Adhesive – LOCTITE 577
- General purpose, 100% seal
- Fast curing for coarse threads
- P1 NSF, DVGW, drinking water approval
- Ideal for metal parallel & taper fittings

Gasketing Sealant – LOCTITE 518
- Ideal for use on rigid iron, steel and aluminium flanges
- Replaces need to hold multiple gasket stocks

Cleaner – LOCTITE SF 7063
- Solvent-based general parts cleaner
- Ideal for use prior to adhesive bonding and sealing applications

Emergency Repair Tape – LOCTITE SI 5075
- Non-sticky, self-fusing multi-purpose wrap
- Seals instantly
- Stretches to three times its size

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

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

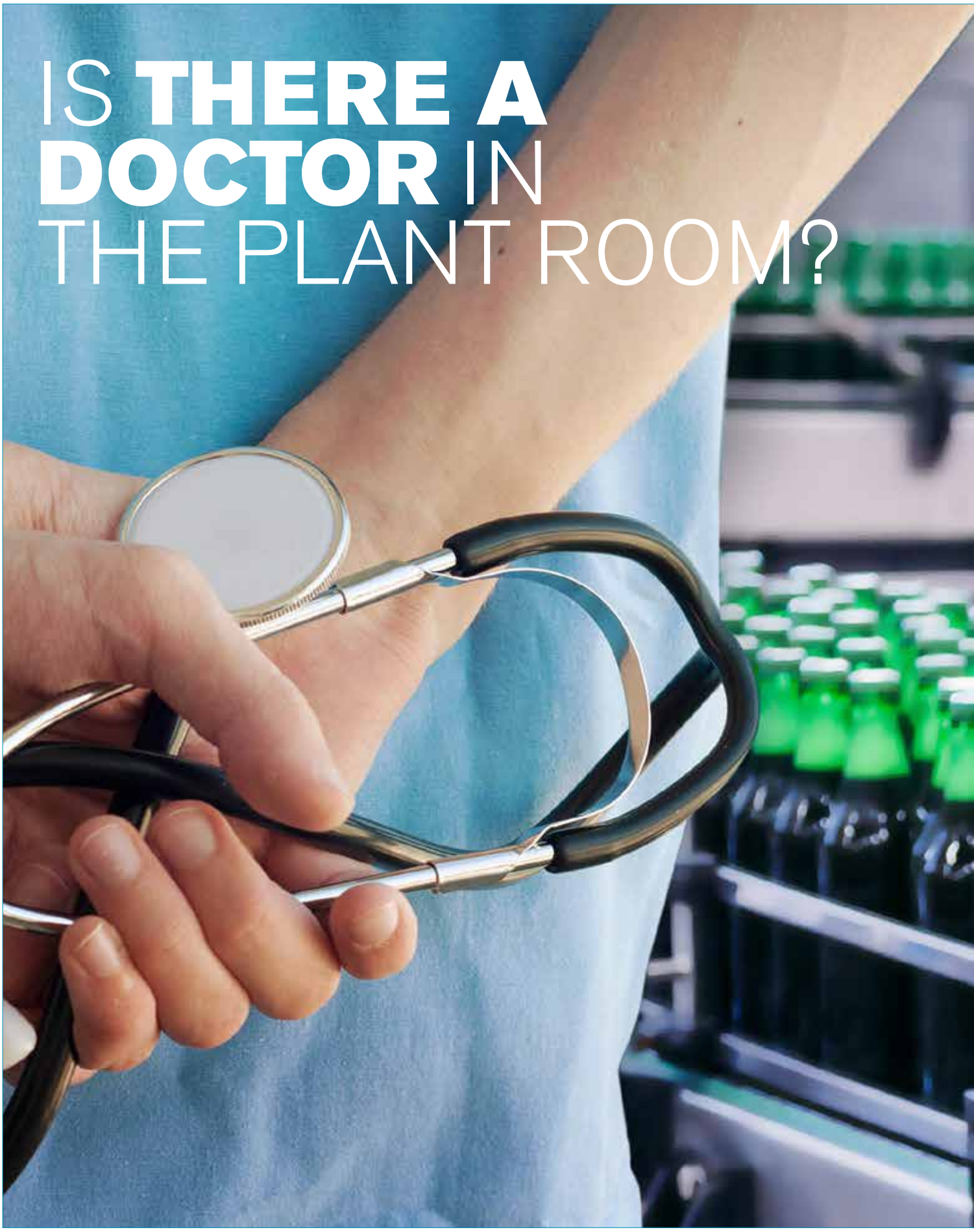
Thread Sealant Silicone – LOCTITE SI 5331
- Ideal for use on threaded plastic or plastic/metal fittings carrying hot or cold water

Leak Detector Spray – LOCTITE SF 7100
- Produces bubbles at leakages
- For all gases and gas mixtures except oxygen
- Suitable for iron, copper and plastic pipe work

For more information, visit www.loctite.co.uk/airleaks
or call us on 01442 278100

Henkel

IS THERE A DOCTOR IN THE PLANT ROOM?



Carl Lock
Business Development Manager
Industrial Pumps
ERIKS UK & Ireland

An experienced engineer is like a Doctor: understanding the need to look beyond the obvious symptoms, to identify the cause and prescribe the cure. ERIKS' engineers in particular have the know-how to look beyond the obvious and take a more comprehensive approach, as demonstrated with one customer's recent pump problem.

At the customer's beverage production site, in-house engineers identified a problem with a seal on a rotary lobe pump. The pump – used for unloading and transferring glucose from tankers to bulk holding tanks – was leaking substantial quantities of oil and glucose onto the plant-room floor.

The engineers traced the leak back to the rear of the pump and its double mechanical seal. However, ERIKS' engineer took a step back from the obvious.

Symptom or cause?

The pump with a failed seal can be compared with to a patient with a sore foot.

The sore foot is the obvious symptom, and a painkiller would relieve it, but why is it sore? An experienced doctor would take a broader view, which could reveal that the foot is sore because the patient is limping, and the limp signifies a hip replacement is required. In the same way, stopping the leak by replacing the seal won't deal with why the seal is failing in the first place.

So, taking a more holistic view, the ERIKS engineer made three observations:

1. Double mechanical seals require a pressurised barrier fluid, but there were no pressure gauges installed.
2. The discharge pipework of the system was unsupported.
3. The motor gearbox alignment was imperfect, and – when equipment was reinstalled after removal for any reason – alignment was by eye only.

The ERIKS prescription

Although none of these factors is the sole cause of the seal's failure, they are all contributing in different ways to the pump's reliability issues.

Firstly, with no pressure gauge fitted, there's no way of knowing if the barrier fluid is at the required pressure. If it isn't, the seal will be ineffective.

Secondly, unsupported pipework places undue load on the pump, which can affect its overall reliability and have a knock-on effect on the seal.

Thirdly, aligning the motor gearbox unit by eye leads to misalignment, premature coupling failure, and reduced motor gearbox and driven-plant life.

> "REPLACING THE SEAL WON'T DEAL WITH WHY THE SEAL IS FAILING..."

ERIKS' engineer recommended installing pressure gauges and pipe supports; following realignment best practice for every unit installation; and checking alignment at least annually.

Doctors use their know-how to make people better. ERIKS use theirs to make industry work better.

Y CHOOSE SKF TO CUT FRICTION AND COSTS?

Dave Oliver
Channel and Platform Manager
SKF UK

What can you find in your plant rooms? More often than not, frictional noise, energy wastage and excessive maintenance costs. Where can you find them specifically? In the fan assembly bearings of your HVAC system's air handling unit. And how do you get rid of them? With SKF Y-bearings and Y-bearing units.

In tests, SKF's range of low-friction Y-bearings and bearing units has been shown to have a frictional moment at least 50% lower than similar-sized standard Y-bearings. In some cases, the figure has even been as much as 75%.

Reduced friction means quieter performance, and therefore improved working conditions. Reducing frictional losses means lower energy use and greater sustainability. And last but not least, low friction is key to longer service life and less maintenance.

Ideal for air handling systems in factories, offices, shops, restaurants, hospitals and hotels, the SKF Y-bearings range is just as effective in applications from industrial fans to textile machinery and conveyors.

Grease is the word

The main technological improvements in the new SKF range are a new and highly effective contact seal and a new low-friction grease.

The lowered friction reduces the running temperature of the bearings by up to 30°C compared to standard bearings, depending on the operating conditions. Since the industry rule of thumb states that a 15°C temperature reduction doubles the service life of lubricant grease, that's a significant advance.

And the bearings use no ordinary grease

Specially formulated low noise, low friction, water resistant, lithium-based SKF LEGE 2 grease offers extra efficiency and longevity. Combined with the bearings' new integral seals, it ensures that in normal circumstances there will be no need for relubrication during the bearings' lifetime.

This not only saves time, effort and cost, but also addresses the environmental concerns raised by relubrication.

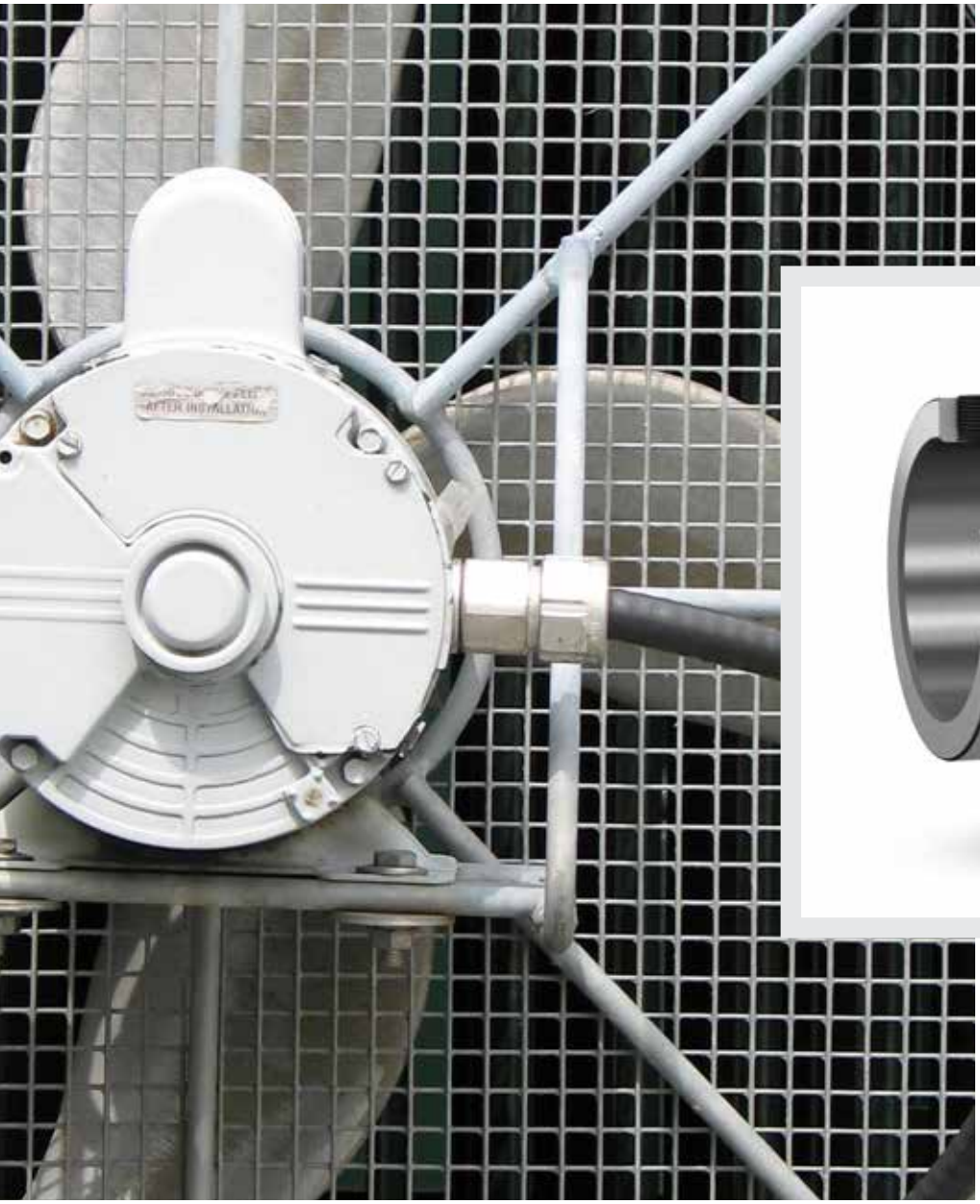
> "NO RELUBRICATION DURING THE BEARINGS' LIFETIME..."

Ready for anything

SKF low-friction Y-bearings are available in a wide range of sizes and configurations.

They can also be supplied in fully-assembled SKF low-friction Y-bearing units with composite housings, optimised as necessary for specific applications. Lightweight, cost-effective and easy to mount, they're especially suitable for users requiring reliability and minimal maintenance, at high speeds with moderate loads.

The housings are made from polyamide material reinforced with glass fibre, and are resistant to a variety of chemicals and dilute acids. For maximum mechanical strength, durability and thermal stability, a steel coil is moulded within the housing body, while the mounting bolt holes are lined with zinc-



coated steel. As a result, the unit's radial breaking load is higher than the basic static load rating of the Y-bearing it contains.

> "DIMENSIONALLY INTERCHANGEABLE WITH CAST IRON UNITS..."

Along with excellent corrosion and UV resistance, the material offers good tolerance of high and low temperatures, is paintable, and can be recycled after use. Although up to 75% lighter, the housing is dimensionally interchangeable with cast iron units conforming to ISO 3228 – so upgrades are easy.

Finishing touches

SKF low-friction Y-bearing units are designed for easy, uncomplicated mounting.

An initial misalignment of up to 5° is accommodated by the bearing's spherical outer surface and the housing's matching bore. The bearing's inner ring can be extended on one or both sides, in line with the desired locking method.

For compliance with health and safety regulations, the units can be supplied with optional SKF ECY end covers which simply snap into the recesses in the housing bore. Made from polypropylene, they're strongly resistant to most chemicals, and tolerant of temperatures as high as 100°C. As an alternative, SKF ECW end covers have the added option of a drain hole which can be easily opened when necessary.

So why choose SKF Y-bearings and Y-bearing units? Because, as SKF Channel and Platform Development Manager, Bearings and Units, David Oliver says: "Whatever your situation, we can configure the right SKF low-friction Y-bearing unit to reduce total cost of ownership."

"With faster, easier mounting, reductions in energy and grease consumption, lower maintenance costs and longer service life, these units save time and money all the way. And they make buildings quieter and more comfortable, while minimising impact on the wider environment."

Which means it's not a case of why choose SKF, but when?

CLEARED FOR TAKE OFF

Graham Wignall
Product Manager
Lubrication
ERIKS UK & Ireland

While 747s take off and land 24/7, behind the scenes at any large airport there are far more down-to-earth operations going on – though they're just as critical to the smooth running of the site.

So when health and safety and cost concerns arose in the Energy Centre of a major UK international airport, ERIKS had to quickly get a solution off the ground.

The airport's Energy Centre contains – like most Plant Rooms – assets incorporating bearings of all sizes and types. These were being manually lubricated on a monthly basis, which is where the maintenance engineers hit turbulence.

Some of the bearings – especially in the chip feeder and cooling ducts – are too far off the ground for safe access without a hoist. So every month costly access equipment was hired-in, and labour costs rose for the time-consuming manual lubrication regime.

The customer approached ERIKS for new ideas which would fly.

> "TIME-CONSUMING MANUAL LUBRICATION REGIME..."

Engineers in the ejector seat

The obvious solution was to remove the manual element of the process – eliminating any health and safety concerns. And that meant fitting Simalube automatic lubricators.

Available in five different sizes, Simalube lubricators will automate any single-point lubrication task, with a wide variety of greases and oils.

Once installed – a quick and simple job – the lubricators use an integrated dry cell to produce gas. The gas builds up behind the lubricator's piston, gradually pushing it down to dispense the lubricant, evenly and in the required quantity.

Because the lubrication is continuous, the bearing is optimally lubricated at all times, with no chance of running dry and no

"AUTOMATE ANY SINGLE-POINT LUBRICATION TASK, WITH A VARIETY OF GREASES AND OILS...."

wastage. The amount of lubricant dispensed can be set precisely and accurately using just an Allen key.

Feet on the ground

With the installation of the Simalube automatic lubricators, the customer has massively reduced the cost of hiring access equipment. Now maintenance engineers don't just keep their feet firmly and safely on the ground, but have also reduced their involvement in the lubrication regime.

Instead, the bearings are continually kept optimally lubricated with no manual intervention – ensuring the assets achieve their designed service life, and reducing their Total Cost of Ownership.

Reducing hoist hire charges and labour alone has allowed the customer to take off £6,000 from their annual maintenance costs. Longer service life and lower TCO will help them save even more. So as every plane flies off into the blue, lubrication costs go further into the black.

GET FILTRATION ON YOUR SIDE (STREAM)

Riaz Esmail
Proposals Manager
Amazon Filters

A Closed Loop Water Circuit is an essential part of any building's environmental control system.

But what about abrasion, corrosion, faulty valve operation, maintenance problems and poor temperature control? Are they an unavoidable part of a Closed Loop Water Circuit?

For building occupants, this can lead to water being too hot or too cold. For maintenance engineers, this can cause difficulties such as fouled heat exchangers and sticking valves, too-frequent maintenance and too much system downtime.

As you would expect in a Water Circuit, the issues all arise directly or indirectly from the water itself. What you might not expect is that they can all be avoided.

Where there's water…

…there's corrosion. Which means that eventually the water will contain corrosion products as suspended solids and biofilm.

At best, these will abrade, corrode and wear the system pipework and components as they travel around it. At worst, they will come to rest in heat exchangers or valves and inhibit their proper function – which is when the building occupants start looking for a fan or an extra jumper - and start to complain!

> "ISSUES ARISE DIRECTLY OR INDIRECTLY FROM THE WATER ITSELF..."

Sometimes the extent of fouling will be such that dismantling and cleaning the components is the only option.

Water can also be an ideal medium for micro-organism contamination. Bacteria will circulate within the system and some will coat the interior of the pipework with a biofilm.

Biocide treatment will neutralise the contamination but then the treated organisms – although no longer growing – will become suspended solids that cause problems already outlined.

However, there is a solution that will help you to avoid contaminants of all kinds mentioned above in the Closed Loop Water Circuit. Just move to the Side (Stream)!

Side Stream filtration. Mainstream solution

The Building Services Research and Information Association (BSRIA Publication BG29/20/12; pre-commission Cleaning of Pipework Systems), recommends a permanent Side Stream filtration system - for initial clean-up and ongoing maintenance of pipework systems.

Amazon Filters is one of Europe's leading manufacturers of this type of filter system and understand the specific requirements of Closed Loop Water Circuits in the Building Services sector. In addition, Amazon's SupaSpun II cartridge filters are one of the very few products to be accredited by the Water Industry for use in this specific market.

> "FOR INITIAL CLEAN-UP AND ONGOING MAINTENANCE OF PIPEWORK SYSTEMS..."

An Amazon Filters Side Stream filtration system is typically installed in a building in the Plant Room. Depending on the water pressure, this will either be on the positive side of the system pumps or in a separate loop system - with an independent booster pump.

Once installed, the Amazon filter system removes the contaminants – and the problems that go with them!

Absolute filtration

An Amazon Filters Side Stream filtration system is designed to treat 5-15% of the main water circuit flow in a Closed Loop Water Circuit. The treatment will remove not only suspended solids but also the chemically treated biomass.

A typical system consists of an Amazon Stainless Steel 61 Series filter housing and Amazon SupaSpun II filter cartridges. These filters are available in a range of micron ratings, so as the re-circulating water becomes cleaner, a finer filter can then be installed to remove ever-smaller contaminants.

For most effective filtration, Amazon Filters recommend using absolute rated filters, which maintain their efficiency throughout their whole service lifetime, even if the water conditions vary. So, you can be sure for the long-term that your Closed Loop Water Circuit will not cause you any problems. And neither will your building's occupants!

> "REMOVES CONTAMINANTS AND THE PROBLEMS THAT GO WITH THEM..."

Royals, planes, trains and football stadiums!

Recent Amazon Side Stream filters are successfully operating in Buckingham Palace, Heathrow Airport, St. Pancras International Station and Chelsea FC to name but a few installs...

The Heathrow system has a water volume of over 500,000 litres, requiring 8 filter housings in each of the two main plant rooms. At St. Pancras International, the large and complex new heating and cooling systems – which have a particularly high solids loading in the water – are served by high and low-temperature 20 micron Amazon filter cartridges.

HOW TO PREPARE YOUR AIR

FESTO
Aruj Abbas
Product Manager
Festo

You know the expression that genius is 1% inspiration and 99% perspiration? Well, compressed air is 100% preparation for 0% condensation. And 0% dirt, oil and chemical contaminants too.

Only the best prepared, driest and cleanest compressed air can ensure the most efficient and cost-effective operation of your pneumatic systems. This will guarantee the longest service life for your pneumatically-operated machines.

So, with compressed air, the key to Best Practice is to start as you mean to go on.

Anything but fresh air

Compressed air is as essential to modern production equipment as fresh air is to humans. Versatile enough to be used across a huge range of applications, it combines speed, power, precision and safe handling.

But even though fresh air is good enough for us, in its natural state it's not good enough for compressing, because it's anything but fresh.

Just one cubic metre of unprepared ambient air contains up to 180 million dirt particles, 80g of water (at 50°C; amount depends on temperature), 0.03mg of oil, and various chemical contaminants. These can lead to mechanical friction within machines, corrosion, and blockages.

For systems in the food and beverage industries, the cleanliness of the compressed air used is even more important when the air is part of the process or comes into direct contact with the product.

However, in any industry sector where compressed air is used as a source of power, maintaining the efficiency of the compressed air system and optimising the operation and service life of equipment depends on removing impurities before the air enters the system.

Proper air preparation will pay for itself in increased process and product reliability, and increased system availability.

Prepare before…

Problems with compressed air systems tend to arise slowly and go almost unnoticed. If the air is not properly prepared and moisture or particles enter the system, the resulting corrosion, friction and reduced efficiency will take time to show themselves. Then all too often, even when they are evident, the response isn't to resolve the cause but to tinker with the effect.

> "PROPER AIR PREPARATION WILL PAY FOR ITSELF..."

Instead of improving the air preparation upstream, operators may simply increase the compressed air pressure at the machine. The machine returns to its specified operating parameters, but at the expense of higher levels of compressed air usage and lower energy efficiency, all leading to an increase in energy costs. Most importantly, the effects of poor air preparation will not remain hidden for long and will re-appear as the same contamination and moisture is feed through your systems.

In fact, if heat energy and other losses in the system are unrecovered at the start, the energy efficiency of the compressed air process can be as low as 15%. That's why it's essential to utilise efficient processes upstream of your machines to prepare the air properly for use. Next, it's important to consider the correct air preparation equipment at the machine level to allow you to fully realise the true benefits of pneumatics.

Maintain after…

If you were walking through your factory and saw oil or water leaking from a pipe, or saw sparks from a loose electricity cable, you wouldn't ignore it. But if there's a gentle hissing as you walk past an air line, most people would probably keep walking, if they even noticed the noise at all.

That's why, no matter how well-prepared the compressed air may be upstream, it can still lose efficiency downstream through unresolved leaks or other causes. As the symptoms can be rectified by increasing the pressure at the machine, the problem may be left unattended for a long time.

It's not only obvious leaks which can lead to inefficiency.

> "AMBIENT AIR CONTAINS UP TO 180 MILLION DIRT PARTICLES..."

A poorly designed system, with excessively long lines, too many branches, or radii which are too small, can suffer reduced flow rates and require extra energy to deliver the required pressure. Old or damaged lines may not leak but could have rough internal surfaces or contamination which slow the flow. Cross sections and connections which are too small will also restrict the flow and reduce pressure.

Even a system which was well-designed to begin with can become inefficient if it's extended or as more connection points or consuming devices (valves, filters, drying units) are added. It is vital to understand the function of the pneumatic circuit within your machine and adjust flow rates or operating pressures where needed.

So, it's not only important to prepare the air properly before it enters the system. It's also important to maintain the system, and even to overhaul its design if necessary, for optimum operational efficiency.

The new pneumatics

Even though compressed air is a long-standing, highly-developed and essential part of production operations, Festo are still making improvements and enhancements. For example, smart sensors are now being integrated into Festo pneumatic systems to improve monitoring of pressure and flow. Not only does this make your machine information easily accessible, it also allows actions to be implemented within your systems to actively start reducing your energy costs. Further advancements in pneumatic technology use intelligent components with integrated software control to allow for far greater control and flexibility within pneumatic systems.

Wherever energy efficiency and process reliability are important, the future of pneumatics looks promising. But for machine reliability and extended service life it's more important to look backwards – to where the process begins with air preparation. Otherwise, if you fail to prepare, you can prepare to fail.

For Festo's valuable Tips and Tricks, visit www.festo.co.uk/air-tips

AIR PREPARATION TIPS

1 KEEP IT CLEAN
Removal of particles, water, oil and other contaminants will increase equipment life and maintain optimum pressure.

2 THINK THREE
Choose your service unit based on compressed air purity, flow rate and correct pressure for your application.

3 DEW THE RIGHT THING
Ensure your pressure dew point is 10K below your lowest ambient temperature, to eliminate condensate and reduce corrosion.

4 ONE STEP AT A TIME
Air preparation involves several stages and therefore different modules: for switching on, building-up pressure, filtering, regulating, drying and oiling.

5 AVOID THE RANDOM
Optimum performance arises from the ideal arrangement of service unit components. Consult a Festo pneumatics expert for advice.

CREATING A **CAST-IRON SOLUTION** IN THE **PLANT ROOM**

Trevor Elllott
Sales Director
Hydromarque

Meeting a customer's order with a like-for-like product is the easy option. But applying know-how and going the extra mile will often deliver a more cost-effective solution. The difference was recently demonstrated for an ERIKS customer requiring a new plant room drains pump.

The customer manufactures chipboard – a process producing waste water containing sizeable amounts of debris. The water is captured in a large sump in the plant room, from where it is pumped by a centrifugal self-priming cast iron pump. When the pump failed, the customer contacted ERIKS to provide a replacement.

However, 18 months later, the customer was back seeking the same pump but this time with a stainless steel impeller. Experience suggested to ERIKS' Pumps Product Business Unit that this was worth investigation.

Clues to digest

Discussions revealed the pump failed because it had been eaten away internally by corrosion, which the customer believed a stainless steel impeller would resist.

However, as the drains and process pumps pipework, and all system pipework, is stainless steel, repeat failure for the same reason would be inevitable. In addition, the pump was frequently blocked by debris, causing unplanned downtime.

So instead of simply supplying the short-term solution, ERIKS supplied some know-how.

Testing their metal

The challenge for ERIKS was to find a more cost-effective, longer-term solution with a lower Total Cost of Ownership.

A cast iron pump with stainless steel impeller would fit the budget but the cast iron would ultimately fail. The same pump in stainless steel would resist corrosion but be vulnerable to blockages.

ERIKS' partner Gorman Rupp proposed a pump designed for debris-filled water, with a stainless steel impeller and shafts. However the pump itself was cast iron. Their alternative super duplex pump addressed all the issues but was beyond the customer's budget.

It was time to think outside the box.

> "INSTEAD OF A SHORT-TERM SOLUTION, ERIKS SUPPLIED KNOW-HOW..."

Get your coat

Calling on extensive coatings experience, ERIKS sourced a specialist sacrificial coating to resist both the high PH of the water and abrasion from debris. This was applied to the internal parts of a stripped-down standard Gorman Rupp pump, before reassembly with a stainless steel impeller and shaft.

The wide open passageways and easily-removable cover plates of the Gorman Rupp pump make blockages less likely and easier to clear if they occur.

Under ERIKS' guidance and co-ordination, all suppliers worked closely together to create the new pump solution, which is now installed and operating free from problems. And all achieved within budget.

It may not have been an easy option for ERIKS, but it was the right one for the customer.

"UNDER ERIKS' GUIDANCE AND CO-ORDINATION, SUPPLIERS WORKED CLOSELY TOGETHER..."

SO MANY BELTS. SO LITTLE TIME

Prevent an emergency becoming a costly crisis

Nigel Jones
Sales Manager
Power Transmission
ERIKS UK & Ireland

A belt breakdown in an air handling unit is more than just an inconvenience. With so many different belts to choose from, the right replacement is unlikely to be on hand, and that can mean lengthy downtime. But now with Fenner® QuickFix, any belt breakdown can be sorted in just half an hour.

Fully-functioning HVAC units can be crucial. In a hospital environment, for example, lack of a working ventilation system can lead to cancelled operations. And with many different units usually operating in the same building – whether it's a hospital, airport or large warehouse – the odds are always against having the right belt in stock or carried by the emergency engineer.

So the ideal solution to prevent an emergency becoming a costly crisis is a multi-purpose belt. The Fenner QuickFix is that belt.

Pick a belt, any belt

Pick any belt you like and the Fenner QuickFix belt can replace it.

Firstly, its dual groove "V" and "wedge" profile means the QuickFix can be used to stand-in for either type. Secondly, it's available in four widths – SPZ, SPA, SPB and SPC – to give you a wide choice of options. Lastly, it comes in five-metre rolls that can be cut to length on site.

All of which means, with just two five-metre boxes of each section size, every possible belt combination will be covered, for both new and old systems. That's not too many for a stores to carry, or for an emergency engineer to have on the van.

Strip out stripping down

The Fenner QuickFix saves downtime in three ways.

Belts can be made on site to any length in minutes. They can be installed with a minimum strip-down of the unit – thanks to the jointed link belt design. And because any belt breakdown can be resolved in around half an hour, the HVAC system can be back up and running in next-to-no-time.

Then even while the replacement permanent belt is on order and awaiting delivery, the asset can continue to operate.

Versatile, reliable, cost-effective and fast, Fenner QuickFix is a quick fix for HVAC belts, and for stores, plant room and facilities management companies too.

"FENNER QUICKFIX SAVES DOWNTIME IN THREE WAYS..."

Fenner®

ERIKS IN ACTION

Getting the job done

A well-known Facilities Management company was being frustrated on emergency call-outs, because engineers frequently arrived on site to find the right belt wasn't available to complete the HVAC repair.

After a relatively low investment in the Fenner QuickFix range – for all the engineers to carry – the company achieved a significant increase in service levels. Now breakdowns are fixed at once, then the engineer orders the Fenner rubber belt and returns to fit it once it's delivered.

HAVE YOU HEARD?

3M

Simon Field
Personal Safety Technical Services
3M

Without proper protection, exposure to noise can cause various ear conditions, including deafness and tinnitus, as well as associated health problems such as insomnia.

Many of these conditions are entirely preventable, but incurable once they have arisen.

In the UK alone, an estimated 20,000 people suffer from work-related hearing problems, both new and longstanding, according to the Health and Safety Executive (HSE)[1].

For these reasons, employers have a duty to protect their workers from exposure to hazardous noise. The Control of Noise at Work Regulations 2005 require them to eliminate or reduce such risks.

However, with such a variety of hearing protection equipment (HPE) available, it can be difficult to know which to choose. Furthermore, hearing protection is about more than simply matching the protection level to the hazard.

To help employers, as well as self-employed individuals, 3M has devised a simple four-step approach to protecting workers against hazardous noise, involving detection, protection, training and validation.

A "rule of ear"

A loud noise means different things to different people. Some may think of a short sharp explosive noise. Others may think of something continuous like a machine running. Both are valid, and both can cause hearing loss.

> "AN IRREVERSIBLE HEALTH HAZARD..."

In fact, HPE is required in the workplace if continuous noise levels are above 85dBA. So, as well as obvious noise sources like a jet taking off, even a power drill or generator can be classed as loud

noise. A useful "rule of ear" is that if you have to shout to be heard from a distance of 1 metre, noise is probably above safe levels and hearing protection is required.

If an initial assessment suggests there is a problem, accurate, professional noise measurements will be needed, to help inform the choice of noise control methods.

> "PROTECTION SHOULD BE THE LAST RESORT..."

Prevention v Protection

Just like any other workplace hazard, the best way to deal with noise is to prevent it. Is it possible to control the noise at source, by installing soundproofing for example? Protection should only be the last resort.

If prevention isn't possible, or doesn't reduce the noise level far enough, then it's time to choose HPE that's right for the wearer, the task and the environment. First instincts might be to choose the highest level of protection, but if that makes it impossible for the wearer to communicate, or to hear alarms and other important sounds (an approaching forklift truck, for example) then the solution can be as dangerous as the problem.

Unsuitable or uncomfortable HPE is also less likely to be worn or worn properly, and more likely to be removed for conversation – allowing exposure to the noise hazard. So, it's important to consider environmental factors when selecting HPE, and to make the selection process collaborative with the wearer.

Sound advice

Using HPE properly and effectively is not as simple as just putting on ear defenders or putting in earplugs.

Left to their own devices, many employees will wear HPE only when they feel like it or remember. Which may not be every time it's required. It's important they are trained in the importance of when, where and how to wear the protective equipment provided, and – if necessary – how to adjust, maintain and store it.

One size fits all?

The manufacturer's rating for noise reduction (known as attenuation) can only be a guide to the level of hearing protection it provides. That's because all users are different, and may wear the equipment differently.

Large or small ears, for example, will make a difference to the fit and effectiveness of ear defenders, and wide or narrow ear canals will affect the fit of ear plugs.

3M offer fit-testing equipment (the E-A-Rfit Dual-Ear Validation System) which measures the level of protection each wearer gains from any HPE. They can then be better matched with the right equipment and ensure it fits properly.

> "USING HPE PROPERLY IS NOT AS SIMPLE AS PUTTING IN EARPLUGS..."

Protected meets connected

It's clear that noise reduction is needed in many work environments, but so is being able to hear colleagues, alarms and other sounds – without removing the HPE.

The 3M™ PELTOR™ Wireless Communication Accessory solves the problem, Combining Bluetooth® wireless technology with a noise-cancelling microphone and one-button operation, it instantly converts existing 3M™ PELTOR™ X Series Earmuffs into a wireless communications device. Alternatively, the 3M™ PELTOR™ WS™ Alert™ XP HEADSET incorporates the same features, plus an integrated FM-radio.

If you like the sound of them, contact your usual ERIKS Service Centre to find out more.

[1] http://www.hse.gov.uk/statistics/causdis/deafness/index.htm

FAMOUS LAST WORDS?

"It's just a rivet."
"It's only an O-ring."
"All worm drive hose clips are the same."

Klaus Löffler
Sales and Marketing Manager, JUBILEE® CLIPS

But it was substandard rivets that popped out when The Titanic hit the iceberg, allowing water into the watertight compartments.

It was an O-ring not designed to cope with low temperatures which failed, when Space Shuttle Challenger launched on an unusually cold morning – leading to an explosion and a $5.5 billion loss.

And who knows how many times saving pennies on a hose clip has cost thousands of pounds in downtime, labour costs and lost production when it fails?

Of course, not every connection demands the highest quality hose clip

That's why most car manufacturers happily use generic worm drive hose clips for connections under the bonnet of the cars they build. But when it comes to the production line equipment that builds those cars, that must operate reliably 24/7, and will lose manufacturers thousands of pounds in lost production if it fails, then they choose not to take chances.

Then they choose the original JUBILEE® Clips.

The 100-year old, 60-year clip

Only one company makes the JUBILEE® Clip worm drive hose clip – still manufactured in the UK – and that's the company that invented them back in 1921.

If you'd fitted one of its clips back then, the chances are you'd only have had to change it once since.

That's because genuine JUBILEE® Clips undergo some of the toughest corrosion resistance testing known. Sprayed non-stop with salt water for hour after hour, it's 240 hours before a zinc-protected mild steel JUBILEE® Clip shows any signs of significant red rust. And just 200 hours of continual salt spraying is the equivalent of 60 years' exposure to the environment.

This exceptional corrosion resistance is a result of manufacturing from only the highest-quality European zinc-protected mild steel.

For even greater resistance, 100% stainless steel JUBILEE® Clips are available. Salt spray testing results show a minimum of 1,000 hours corrosion resistance for ASI 304 stainless steel clips, and 2,000 hours for clips manufactured from ASI 316 stainless steel.. And all JUBILEE® Clips have rolled edges, making it even harder for corrosion to find a foothold.

> "ONLY ONE COMPANY MAKES THE JUBILEE® CLIP..."

No surprise then that JUBILEE® Clips exceed BSI demands in all areas.

Quality with teeth

L. Robinson & Co (Gillingham) not only invented the JUBILEE® Clip, but continue to claim theirs is "the finest hose clip in the world." And they have their reasons.

- The JUBILEE® Clip housing is interlocked with the band on the underside. Cheaper versions are welded – creating a weak point and access for corrosion.
- Genuine JUBILEE® Clips have more teeth per inch on the screw, for better engagement with the band.

- The band is thicker than on copycat clips, for extra strength and solidity.
- The band is continuously threaded, providing more versatility around the adjustment range. Whilst it's always recommended to use a clip with the correct adjustment range for the application, if that's unavailable – because you're out on an oil rig, for example – then a Jubilee Clip can be tightened beyond its range to the required torque, as a temporary but reliable solution. An inferior clip, tightened to its limit, would feel tight, when in fact it's just run out of thread.
- The positively riveted housing's wraparound formation allows free turning torque, compatible with maximum strength, and ensures the screw and band stay rigidly engaged, and remain intact during installation.
- The screw's 7mm hexagonal head and unique crimp formation prevent it disengaging from the band threads and housing.

A clip is a clip is a clip?

There are hose clips that might save a few pence. And there are JUBILEE® Clips that can save your maintenance budget, save your production, and may even save a life. There's also more than one JUBILEE® Clip.

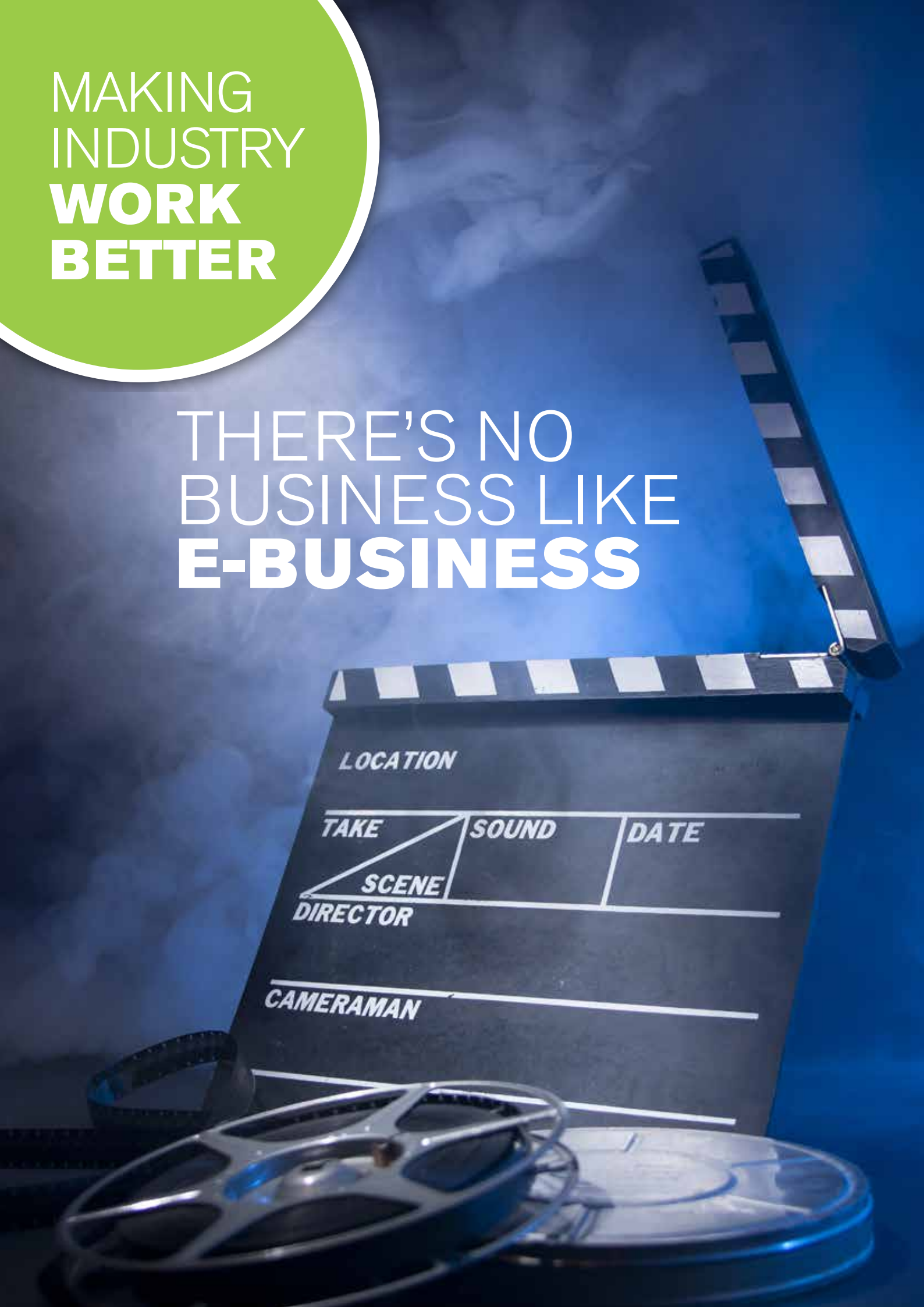
"THE FINEST HOSE CLIP IN THE WORLD..."

There's the Original JUBILEE® Clip with its worm drive, of course. But there's also a whole range of other high-quality clips for specific applications: from the High Torque to the Multiband, the Light Range to the JUBILEE® Juniors, and the Quick Release Straps to the Superclamps.

What they all have in common is they're designed to the highest standards, and manufactured to the highest quality. In other words, JUBILEE® Clips are the famous last word in hose clips.

MAKING
INDUSTRY
WORK
BETTER

THERE'S NO BUSINESS LIKE **E-BUSINESS**



Geoff Cox
E-Business Manager
ERIKS UK & Ireland

Moving your purchasing processes to paperless E-Business will reduce your costs, improve the control and reliability of your product ordering and supply, and increase your efficiency.

According to the Chartered Institute of Purchasing and Supply, the average cost to an organisation of purchasing and supply is £50 per item. According to the Global Data Standard Organisation for the Supply Chain, trading electronically can bring that cost down to as little as £7.

For the many customers of ERIKS who have high order volumes, the savings can be significant. For example, if you order over 10,000 lines a month the cost-saving from moving to E-Business can be as much as £80,000 per annum.

Savings are realised through the elimination of duplicate manual inputs, simplification of administration processes, reduced administration costs, and virtual elimination of invoice queries resulting from human error: potentially one of the biggest cost-saving areas. Our experience shows that for customers placing around 700 orders per month, invoice queries reduce to an average of less than one a month.

The benefits of E-Business are not limited to one solution alone. ERIKS E-Business offers three options to reduce costs and increase efficiency.

> "SAVINGS FROM MOVING TO E-BUSINESS CAN BE AS MUCH AS £80,000P.A..."

1 Electronic Data Interchange (EDI)

An ordering and invoicing process communicating from computer to computer, EDI cuts the cost of order processing from £60 for manual processing to £10 for electronic (actual customer comparison).

Instead of scanning, manually entering and physically matching invoices to Purchase Orders, EDI invoices are automatically processed and paid with no human intervention. They can be matched to orders based on the total cost, or even at line item level if required. Ordering is also made simpler, with orders pushed directly from your purchasing system and subsequently acknowledged via EDI, which reduces post-invoice reconciliation issues.

Since only approved orders (within automatic approval limits you set) are processed, EDI puts you in control of your ordering, and ensures only approved suppliers are used. This helps reduce off-contract spend, and ensures contract compliance.

EDI is most commonly integrated with customers' own SAP systems, but ERIKS in-house expertise accommodates all other common systems too.

2 Punch Out

Offering a fast and error-free ordering method, Punch Out allows you to create orders without manual keying.

To raise an order on your own ERP system, you simply search and select items from ERIKS Webshop, which contains all technical, pricing and delivery information you need online. Once chosen, add the items to your shopping cart, and when you place your order the items will be added into the order on your ERP system, and a requisition automatically generated and sent to ERIKS via EDI in your normal way.

By using Punch Out and EDI together, you can totally automate ordering and invoicing. You can also create order lists, Bills of Materials and Kits of Products for specific machines.

If an unusual or one-off product isn't available in the ERIKS Webshop, you can send a Request for Quotation online. This will be handled within the Webshop system, then fed back into your own system for easier management.

You can also add the option of Vendor Managed Inventory integrated with Punch Out, to enable management of your consumables stock using a barcode scanner. This will upload orders directly via ERIKS' Easy Order System. The system can also flag-up minimum and maximum stock levels and provide alerts when an order needs to be placed.

3 ePDF

For customers who can't or don't want to engage in EDI, ePDF offers a useful halfway-house.

Purchase Orders are emailed as PDFs to ERIKS, for automatic conversion into EDI format for loading onto the ERIKS system. This reduces transaction queries and keying errors, and so accelerates the ordering process.

E for efficiency

ERIKS have over 30 years' experience of providing E-Business solutions to customers, with a dedicated team who have integrated these systems for some of the largest manufacturers in the UK.

ERIKS E-Business options allow you to chose the method which best suits you and your business. However, they all offer the same underlying benefits of greater efficiency, cost reductions, control and accountability – ensuring you know who ordered what, from where, and when, and enabling tight control of procurement and maintenance budgets.

> "E-BUSINESS SYSTEMS FOR SOME OF THE LARGEST CUSTOMERS IN THE UK..."

You can also be assured of tight cyber-security. ERIKS has recently been certified by Cyber Essentials Plus: a government-backed scheme verifying a business's security status.

So if you decide to adopt E-Business practices, makes sure the "E" stands for ERIKS as well as "Electronic".

TALKING TORQUEING

Garry Wakeling
Industrial Sealing Manager
ERIKS UK & Ireland

When a gasket fails, the temptation is to replace it as quickly as possible to get your asset back up and running. But taking time and care to prepare, calculate required torque, and tighten correctly will help to prevent repeat gasket failure due to incorrect installation.

Follow this Best Practice and you can be sure your gaskets will provide a perfect long-term seal. Ignore it, and you can't even be sure they will seal at all.

Once you have removed the failed gasket, your first task should be to clean and inspect the flange surfaces, fasteners, and bolts. Then clean the flange faces to remove any residue remaining from the old gasket, and the fasteners and bolts to ensure there's no rust or dried-on lubricant. A brass wire brush is recommended, to avoid scratching the bolt threads; likewise, a brass bar filed to a chisel point is ideal for cleaning the flanges.

> "BEST PRACTICE FOR A PERFECT LONG-TERM SEAL..."

When the bolts and flanges are clean, inspect them carefully. Bolts should be free from chips and cracks, and when you run a nut down them it should move smoothly. Flange surfaces should show no distortion or scratches. Deep radial gouges, in particular, will affect the quality of the seal when the gasket is in place.

Damaged bolts should be replaced, and a damaged flange will require replacement of the component if it is not possible to re-machine the flange surface.

The more time you spend on this phase of gasket replacement, the more likely the new gasket is to fit with a perfect and lasting seal.

Handle with care

Before you position the new gasket, lubricate the stud bolt and the inner face of the nut which will come into contact with the flange. A graphite, copper or molybdenum sulphide grease is the most effective – with copper grease being the best choice to prevent seizing in high-temperature environments.

Now position the gasket. Whatever its size, it requires careful handling. Avoid bending or buckling the gasket to ensure you don't break it. The largest gaskets will require two people to manoeuvre them into position: don't try and do it alone or you are almost certain to damage the gasket.

With the gasket in place, you can begin to put the bolts into position. Which is when we need to talk about torque.

Record your torque

If the engineer who previously installed or replaced the gasket did their job properly, you will have a record of the torque applied to tighten it. Knowing what torque has been applied not only makes replacement quicker, but also helps in identifying causes of failure in the future.

However, if there is no record of the torque, you will need to calculate it. And once you have, you'll of course follow Best Practice and record the figure, ready for next time.

Your target torque setting will come from a calculation based on the gasket area, the pressure on the seal and the stresses on the bolts. Torque should be sufficient to compress the gasket to create a seal, which will partly depend on the gasket material. You or any other competent engineer will know how to work this out.

> "KNOWING WHAT TORQUE HAS BEEN APPLIED MAKES REPLACEMENT QUICKER..."

With the calculation made and the resulting figure to hand, you will need a calibrated torque wrench to tighten the bolts. Ensure that the wrench is correctly calibrated and certified as such. Calibration is not a one-off process, and any torque wrench will need recalibrating at minimum in line with the default standard of every 5,000 cycles or 12 months.

It's critical to tighten the bolts in the correct sequence and in stages, to prevent pinching or splitting the gasket. See the box-out for details.

Now you've fully tightened the bolts with the gasket in place, the seal is complete. And if you have followed the Best Practice outlined above, it should remain complete until your next planned shutdown.

How to torque nuts

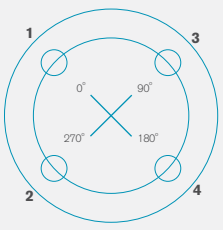
Following the appropriate pattern for the number of bolts (see diagram) tighten the nuts in steps.

First tighten nuts loosely by hand, then torque each nut to a maximum of 30% of full torque, followed by 60% and then to full torque.

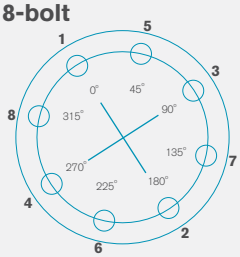
Lastly, make a final pass at full torque, tightening (if required) adjacent bolts in a clockwise direction.

> "IT'S CRITICAL TO TIGHTEN BOLTS IN SEQUENCE AND NOT TO APPLY THE FULL TORQUE AT ONCE; 30% OF THE FULL TORQUE AT THE FIRST STAGE, FOLLOWED BY 60 AND 100%..."

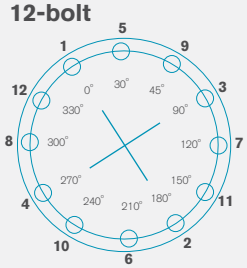
4-bolt



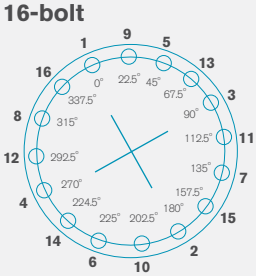
8-bolt



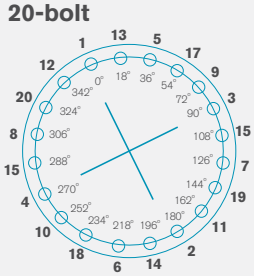
12-bolt



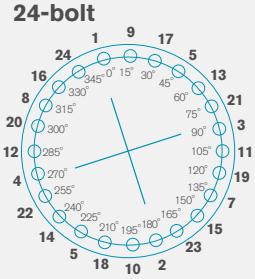
16-bolt



20-bolt



24-bolt




COMPARE
AND
CONTRAST
WITH CONTI

Marcel Vogel
Master of Engineering
Contitech

Calculating potential cost savings from replacing an existing drive system can be a bit hit and miss. Should you believe what the sales engineer tells you?

Should you trust your experience and instincts? Or should you use the "Conti Professional" energy cost calculator?

The web-based calculator is a key feature of the two-pulley and multi-pulley Continental design program. By calculating the annual energy and cost savings, the application gives you clear, unbiased evidence of how much you can save with a new Continental system. And it's usually a sizeable amount.

But just as the Conti Professional app means you don't have to sort the sales hyperbole from the facts, so there's no need to read a list of its benefits here. Instead, simply see how it works in the example below.

Scenario:

A power plant operator wants to increase the energy-efficiency of their fin fans – for environmental reasons and to reduce costs. The new drives also need to be as quiet as possible to avoid disturbance of a nearby residential area.

1 Design drive

Using Conti Professional, the engineer begins by creating his project and launching the project editor. Under "Type of System", he specifies that endless belts are to be used. Then, under "Belt Selection", he chooses a timing belt as the "belt nature" and Conti SilentSync (since this runs especially quietly) as "belt type". He also specifies a pitch of 14M.

The next step is to specify the geometry data. The drive has two pulleys. The drive shaft pulley has 28 teeth and the output shaft pulley: 264. The speed of the drive shaft is 1,470rpm.

> "CLEAR, UNBIASED EVIDENCE OF HOW MUCH YOU CAN SAVE..."

Finally for this stage, the engineer selects a standard belt length of 3,920mm. Based on this data, the system calculates a centre or axis distance of 754.84 mm. This is followed by details of the power output (37kW), and the operating conditions – which call for a service factor of 1.4.

2 Estimate capital costs

According to Continental's Application Engineer Marcel Vogel, who played a key role in developing the software, "These few details are enough to enable the new timing belt drive to be calculated. Also, the user now has all the information needed to request the required parts and estimate the capital costs."

3 Compare drives / calculate energy costs

Once the new timing belt drive has been designed, the engineer can input the machine and belt data for the old drive into the Conti Professional calculator.

In this example, a fin fan in the power plant operates for 16 hours a day, or 5,840 hours annually. It is serviced every 3,200 operating hours, when the initial tension is correctly set.

To date, it has been operated by a raw-edge narrow-section V-belt with a basic efficiency of 95%. However, over time, average efficiency has fallen to around 84%. "The figures stored in Conti Professional are based on figures from Continental's own experience," explains Vogel. "If a customer has figures calculated in-house, these can be inputted instead and the energy efficiency will be calculated using that data."

> "JUST A FEW DETAILS ENABLE THE NEW DRIVE TO BE CALCULATED..."

In contrast, the new timing belt system uses Conti SilentSync, which is maintenance-free in operation and has an efficiency of 99%. Irrespective of the system, the energy costs are 0.15 euros per kWh.

Based on this data, the Conti Professional energy cost calculator calculates the annual energy consumption of the current system is 256,261.86 kWh. This compares to energy consumption of the new system of 218,262.63 kWh. Applying the energy price above, the annual saving with the new system would be 5,699.88 euros.

As Vogel points out, "When you consider that cooling towers in power plants have 20 or more fin fans, this quickly results in a six-figure sum saved."

4 Share the data

The resulting report clearly summarizes all the project data, and can easily be converted into a PDF file for sharing with colleagues. It can also be saved in Conti Professional, ready – for example – for modification for future projects.

"The user can also contact us with any questions relating to capital costs and technical details," says Vogel – adding a human touch to the calculator's efficiency and effectiveness.

PROBLEM SOLVERS

Solving problems for food and beverage manufacturers is meat and drink to ERIKS. Here are two of the most recent challenges and ERIKS' tasty solutions.

SWEET MANUFACTURING TURNS SOUR

igus®

PROBLEM

A confectionery production facility in Yorkshire uses Sorting Beds to sort its products. These operate with a constant up and down motion which is inevitably transferred to the attached control cables. Unfortunately, the standard control cables being used were not designed for the continual flexing motion, and as a result were failing approximately every five weeks. The associated downtime was drastically reducing production volumes.

SOLUTION

ERIKS proposed switching the standard control cables for igus CF130 chainflex® cables. Installing these PVC cables represented only a minimal cost increase over the standard cables, yet they are specifically designed to cope with the flexing motion involved in the application.

Since installation of the igus chainflex cables in 2016, there have been no recorded failures – ensuring dramatically increased uptime and production throughput. Sweet!

CABINET RESHUFFLE

FESTO

PROBLEM

A large food manufacturer needed to install a valve terminal within a food zone. Previously, across several locations, they had resorted to housing traditional valves in costly stainless steel cabinets in order to comply with hygiene requirements. This time they wanted to eliminate the need for the cabinets, for greater cost-effectiveness.

SOLUTION

After careful consideration and consultation with ERIKS, the customer chose Festo's MPA-C clean-design valve terminal. With an IP69K protection rating and exceptional corrosion resistance properties, this hygienic design valve terminal can be located directly within the food zone, with no need for a stainless steel cabinet to house it.

The MPA-C valve terminal is manufactured from FDA-certified materials, which a resistant to high-pressure cleaning and harsh cleaning chemicals, making it ideal for aggressive wash-down regimes.

Problem solved, and not a stainless steel cabinet in sight.

Dr. Who isn't the only one who can solve tricky problems with time. So can ERIKS. Here are two of the most recent challenges and ERIKS' time saving and time-expanding solutions.

WELL OUT OF LINE

Fenner

PROBLEM

A large manufacturer of original equipment blower units works to tight time constraints on the production line. So problems with quick and accurate installation of belts and pulleys were having a knock-on effect on production.

Correctly installing, aligning and tensioning each drive package was taking up to three hours. This was mainly due to the adjustment of the belts to achieve their correct tension also altering other elements of the drive's alignment, which then had to be readjusted. And this in turn could affect the belt tension, which would have to be adjusted, and so on.

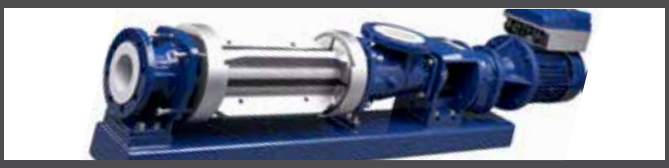
SOLUTION

ERIKS suggested the customer used the Fenner Drive Alignment Laser tool, which makes accurate alignment much quicker and easier to achieve. The tool uses a laser light to provide a visual guide to the alignment.

When adjustments are made to other elements of the drive package, it's easy to see the effect they are having on alignment, and therefore easy to make fine axial or angular adjustments to restore the correct alignment, as indicated by the laser. As a result, adjusting a belt went back in time: from three hours to a few minutes.

HARD TO DIGEST

SEEPEX. ALL THINGS FLOW



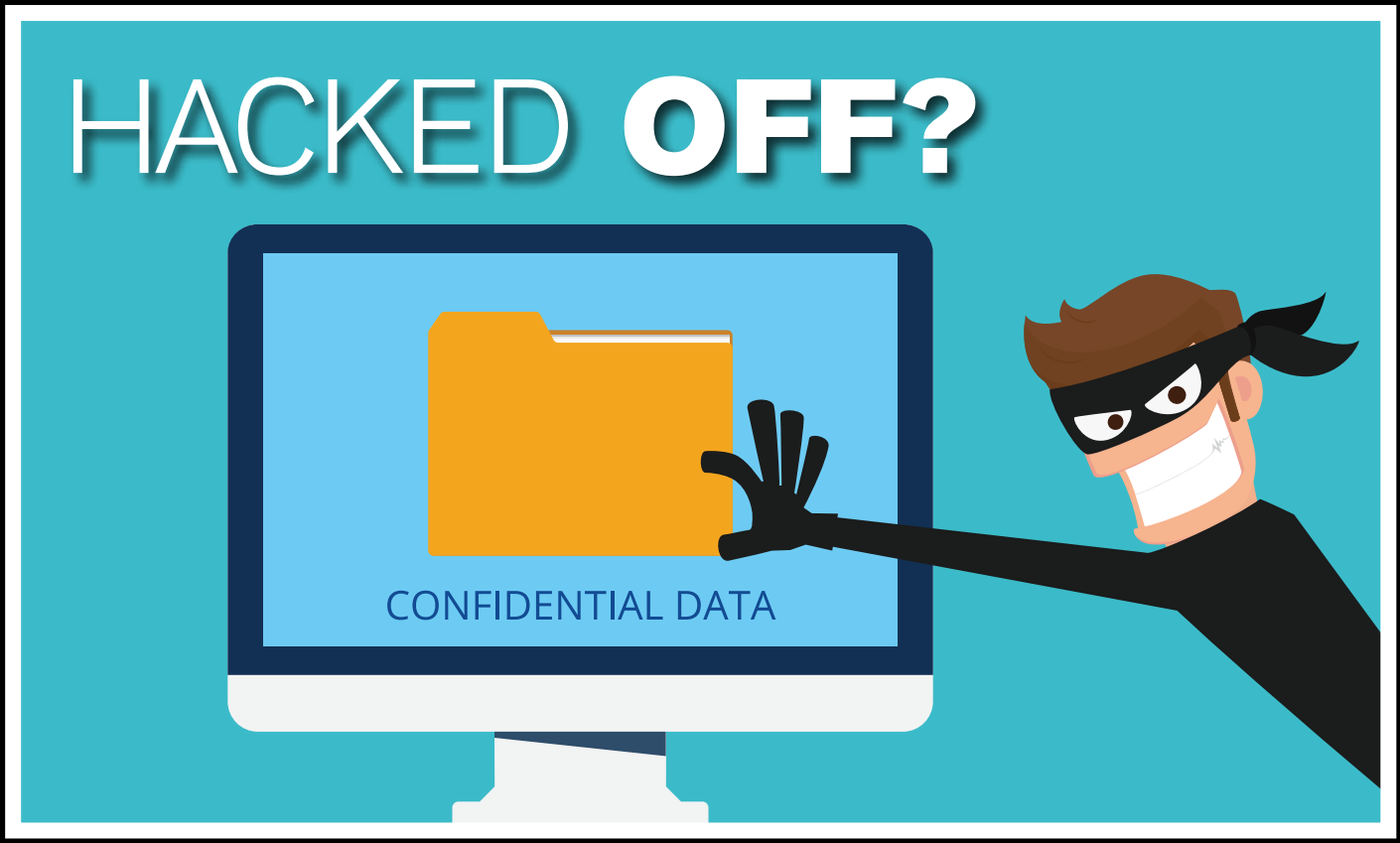
PROBLEM

A commercial anaerobic digestion plant operates lobe pumps as part of its process. These were wearing excessively, with frequent lobe replacement necessary: sometimes as often as once a week. The excessive frequency of replacements resulted from high wear rates and high abrasion, caused by variations in the consistency of the food waste, together with contamination by non-food waste.

SOLUTION

ERIKS noted the high lobe replacement rate and proposed a solution in the shape of SEEPEX progressive cavity pumps with Smart Conveying Technology (SCT). Progressive cavity pumps already offer a longer service life than many lobes on aggressive duties, and SCT pumps can extend this even further – by as much as 300%. SCT utilises a longitudinally split stator, held in place by four retaining segments.

These segments can be adjusted as wear occurs, to maintain full pump performance. In addition, any blockages which occur can be removed without a complete dismantling of the pump, and both the rotor and the stator can be replaced without removing any pipework. Since the new pumps have been installed, service life has been extended by ten times. That's almost as many new lives as a Time Lord.



Data security has been in the news a lot recently, with more than one million UK Facebook users having had their data 'shared' with Cambridge Analytica, which then went on to use it for various illicit political purposes.

Certainly, the data and cyber-security threat is becoming more real, with high profile attacks made in recent years on organisations, ranging from the Massachusetts Institute of Technology, to Vodafone, Amazon, and even the UK's National Health Service, being held to ransom.

According to IBM's Cyber Security Intelligence Index, the manufacturing industry is now one of the most frequently hacked. In fact, one of the largest breaches happened less than two years ago when more than 130 different industrial, manufacturing and engineering organisations were targeted in more than 30 countries, in what became known as Operational Ghoul.

In my view, this concern over data and network security is a major barrier to the implementation of Industry 4.0 in the UK. I was recently told a story by one of my colleagues about a visit to a manufacturer of high-end motor vehicles at their superb new manufacturing facility in the UK. The plant is full of machines making components which are then assembled to make one of the most well-known brands in the world.

THIS CONCERN OVER DATA AND NETWORK SECURITY IS A MAJOR BARRIER TO THE IMPLEMENTATION OF INDUSTRY 4.0 IN THE UK

The Production Director was rightly proud of his facility, but when the subject turned to Industry 4.0 he was much more cautious. His words are worth quoting. "I get people coming in here all the time telling me we have to get all of this networked. But, if we get hacked, this facility could be shut down for days or even weeks."

ERIKS' own research suggests UK industry is very reluctant to share data. When we polled 250 Production and Maintenance Managers across the UK, 79 per cent of respondents answered that their own organisations would offer only limited or no disclosure of information with their OEM equipment partner.

My concern is if the pendulum swings too far towards protection and the benefits of greater data sharing are not realised. There needs to be a balance between protection and data sharing which simultaneously protects industry without putting barriers in the way of delivering greater productivity and improved maintenance practices – to name just two immediate benefits.

THERE NEEDS TO BE A BALANCE BETWEEN PROTECTION AND DATA SHARING

It is the job of manufacturers and the indirect supply chain therefore to not only promote the benefits of greater data sharing, but also to listen to the concerns and fears of our customers, particularly in relation to cyber security and the sharing of information, specifically production data.

Crucially, we then need to develop appropriate solutions which could include everything from firewalls to private cloud environments, FOG computing and beyond. Cambridge Analytica and Facebook is an extreme example of the misuse of data, but we must not allow it to create a negative environment around the real benefits of increased data collection and analysis for industry.

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