

KNOW + HOW

Reducing downtime

Reliability is the engine that powers industry forward, inspiring confidence and strengthening relationships. It is the key to optimising profitability and the reason why customers return again and again to a trusted source. In this issue, we'll be looking at how reliability touches many aspects of productivity and how different industries are building reliability into their operations.

ERIKS In Action

Practising what we Preach

Discover how ERIKS Engineering Services delivers the most effective motor, gearbox and pump repair, upgrade or replace solution in the UK helping you Improve efficiency and maximise reliability.

In Focus

A real win, win, win, win solution

Did you know, by switching from an open to a sealed design makes it possible to increase bearing rating life by up to four times in the contaminated environments typical of heavy industrial applications?

Debate

Mixed messages on green investment?

This edition poses questions around the issue of governmental green investment, what are their commitments? Is it enough?

**ERIKS**

Fast. Simple. Connected. IO-Link.

IO-Link

Switches / Sensors



IO-Link Master



Valve Islands



Proportional valves



IO-Link is revolutionising Industrial Automation by offering a standardised and seamless communication interface for all IO-Link devices, with simple installation and a complete range of diagnostics functionality.

IO-Link is the ideal solution for cost effective, more efficient and reliable production. It enables seamless communication and a powerful infrastructure to manage data through your manufacturing process. Intelligent devices can be used to their full potential with IO-Link, paving the way for Industry 4.0 in Industrial Automation.

Norgren offers a complete IO-Link system solution, which includes a wide range of IO-Link enabled devices, as well as an IO-Link Master and I/O Modules (Hubs). The IO-Link Master and the I/O Modules provides a decentralised solution offering the ultimate flexibility.

Benefits of IO-Link:

- » Simple plug & play connection
- » Flexibility - easy to add, remove, reposition or reconfigure your system
- » Remote set-up and monitoring
- » Manufacturer independent point-to-point connection offering seamless integration in established fieldbus systems

IO-Link enabled products from Norgren:

- » IO-Link Masters and Modules
- » VR & VS Series Valve Islands
- » 34D & 54D Electronic Pressure Sensors
- » Excelon® Plus 84 series with Integrated Electronic Pressure sensor
- » VP50 Proportional Valves
- » M/50 Solid State Switches

 Find out more
norgren.com



Scan the QR code to read our IO-Link Brochure and learn more about the full range of Norgren IO-Link products



KNOW + HOW

Welcome



Reliability – one of the most important qualities a business seeks from its suppliers, its teams, its plant and its products and services. Reliability is the engine that powers industry forward, inspiring confidence and strengthening relationships. It is the key to optimising profitability and the reason why customers return again and again to a trusted source.

In this issue, we'll be looking at how reliability touches many aspects of productivity and how different industries are building reliability into their operations. Starting with ourselves! In "ERIKS in Action", we share details of our multi-million pound investment programme into both our Engineering Services capability and engineering team to become the most effective motor, gearbox and pump repair or replace service in the UK.

Our "In Focus" section shows how diverse businesses are embracing reliability through smarter part choices, condition monitoring and predictive maintenance programmes and in "Making Industry Work Better", we look at how the new UKCA mark will impact compliance and how something as simple as changing a lightbulb can truly illuminate the path to cost saving, performance and yes, reliability.

Our Debate article this month poses questions around the issue of governmental green investment – a huge topic which we are sure you will have interesting opinions on. As always, we would love to hear your thoughts on any of the subjects covered in this issue, so why not join the discussion and email or tweet us at @ERIKS_UK

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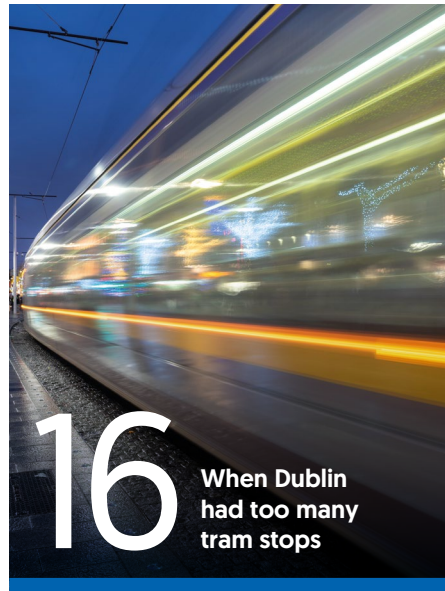


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NEVER MISS AN ISSUE



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ERIKS In Action
Practising what we preach
Discover how ERIKS Engineering Services delivers the most effective, most practical and most innovative repair solutions in the UK, helping you improve efficiency and maximize reliability.

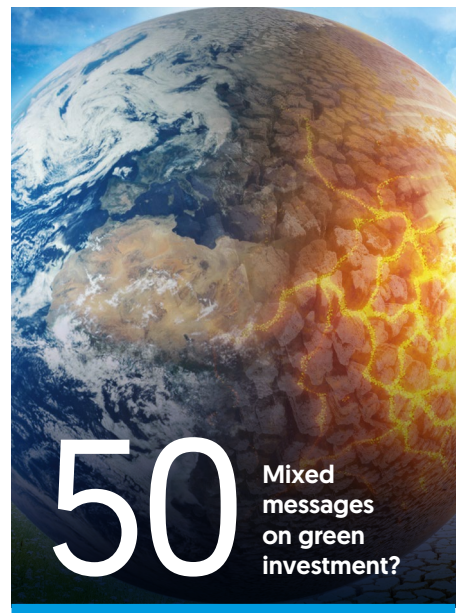
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Debate
Mixed messages on green investment?
The global green economy, supported by massive governmental green investment, what are the commercial risks to it?

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50 Mixed messages on green investment?

The world's first 3D printed motor

It has been claimed, by engineers at the Manufacturing Technology Centre in Coventry, that the world's first electric motor has been 3D printed.

Working closely to develop a new way of producing an electric motor, complete with major components, utilising additive manufacturing techniques, the result is a motor with increased power despite a reduction in the size and mass of vital components, a part count reduction making supply chains simpler, increased manufacturing efficiency, lower running costs, and reduced assembly costs and time.

Potentially clearing the path for the commercialisation of 3D printed electric motors, according to MTC's Chief Technologist Steve Nesbitt, who said: "Additive manufacturing is a key enabler for developing the complex features and forms essential to improving the performance and functionality of electric motors.

"By leveraging the capabilities of additive manufacture through product redesign, major benefits can be achieved in costs, waste reduction, performance, and ease of manufacture."



North West chemical industry set for growth spurt with support of Made Smarter

The Made Smarter Adoption Programme in England's North West has recently collaborated with several SME chemical manufacturers in a bid to capitalise on digitisation opportunities.

Taking advantage of impartial expert advice and match finding, digital transformation workshops have been helping manufacturers delve into this area, helping the sector to increase productivity, achieve sustainable growth, and create more high value jobs.

One example is HMG Paints, who have increased capacity by digitising their traditional paper-based process, enabling them to cope with the surge in demand throughout the pandemic.

This is only one of a handful of positive impact stories, leading to potential £10bn in growth in the NW sector alone.

Made Smarter NW Adoption Programme Director, Donna Edwards commented: "The sector is adopting digital technologies at a faster rate than other sectors in a race to stay competitive, adapt to strict quality standards, compliance and reporting responsibilities, and reduce its environmental impact through waste and emissions.

"However, in highly regulated manufacturing, jumping feet first is very risky and upgrading can seem like a complex task. To help demystify digitalisation, we have produced some crucial guidance as well as explained why implementing digital tools is such a priority in this sector."

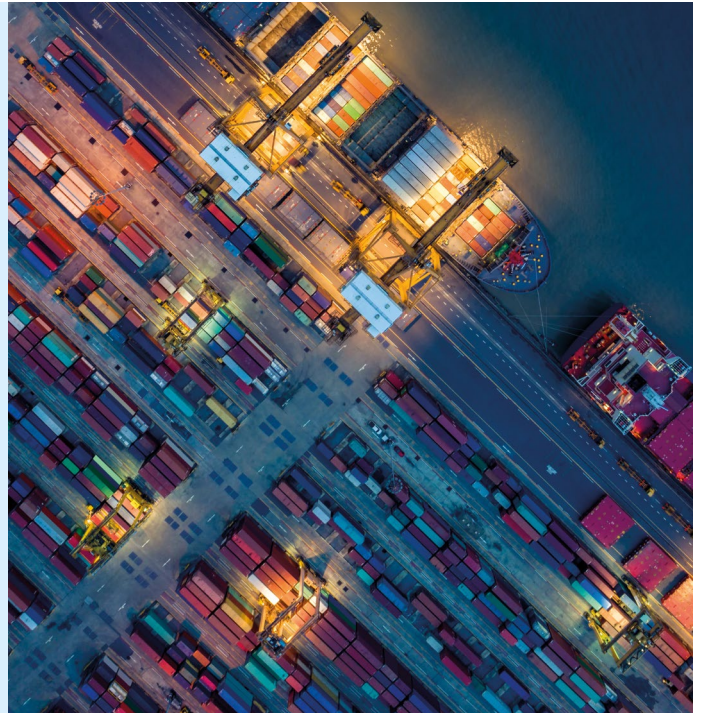


Worrying signs from latest **Manufacturing Barometer** report

The latest Manufacturing Barometer Report has highlighted some worrying trends for SMEs, leaving them concerned about pricing, supply chain and recruitment.

Run by SWMAS (South West Manufacturing Advisory Service), the report polled 260 executives across the UK, with 96% of respondents outlaying pricing increases as a major concern, while high transport costs and lack of raw materials also problematic.

Almost 50% cited that recruitment was an issue, unable to fill vacant positions as economic activity increased following the government vaccine roll-out and loosening of restrictions. But despite the variety of challenges across industry, the report also revealed positive steps in increased trading levels, with just 6% expecting job losses.



Scotland aiming to become leading producer of **clean hydrogen**

The Scottish government's ambition to become a world-leading producer of clean hydrogen by 2030 is well underway according to the latest report by Scottish Enterprise.

It is thought that due to its unique geography, infrastructure and energy expertise, Scotland is well-placed to hit its ambitious target of 5GW by 2030 and 25GW by 2045.

Commissioned by Scottish Enterprise and undertaken by the Offshore Renewable Energy (ORE) Catapult and Net Zero Technology Centre, the initial report is to be followed up by a site prospectus that will assess a variety of Scottish locations and their suitability for clean hydrogen production.

Cutting **CO₂** by two-thirds

It's well documented that the production of traditional Portland cement uses large volumes of limestone which, when burnt, released vast amounts of CO₂ into the atmosphere. Now, scientists in Germany have formulated a new type of cement that releases two-thirds of CO₂ during the production process, whilst also being produced at lower temperatures.

This latest development, by Professor Herbert Pöllmann and his team, replaces the majority of limestone with Belterra clay, found in Brazil's bauxite deposits – a greener alternative.

Although some calcium carbonate is required to produce this new cement, it's suggested that at least 50% of limestone can be replaced. Additionally, the burning process can take place at 1,250°C which is a staggering 200°C lower than its Portland cousin.



NEW Simatec Impulse Connect (with Bluetooth) - Available now!

Introducing the IMPULSE Connect, the latest generation of pressure booster from the simalube family.

The proven functions of the IMPULSE have now been supplemented with the option of connecting the device to a smartphone, via Bluetooth. In connection with the newly development App; Simatec world of maintenance, devices can be easily configured, then monitored, without having to be physically present (range of up to 20 metres) at the lubrication point. Information such as general status, lubricant, size, start and change dates etc. is easily accessible and displayed to the user in the app.

By installing an IMPULSE CONNECT from Simalube, you will gain:

- Cost savings through faster, easier, and safer inspection rounds
- Easier monitoring or operating status via Bluetooth
- Management of lubrication points in Lubechart
- Digital support through the app
- Less component wear and tear
- No production interruptions for maintenance
- 10 bar of extra pressure
- Temperature-dependent grease supply on time-controlled mode

In addition, Simatec have signalled their intention to run a **special launch webinar** dedicated to this new innovation. With dates yet to be confirmed, why not contact james.goodgame@eriks.co.uk for more information or to secure a limited space.



The Most Intelligent Progressive Cavity Pump in the World

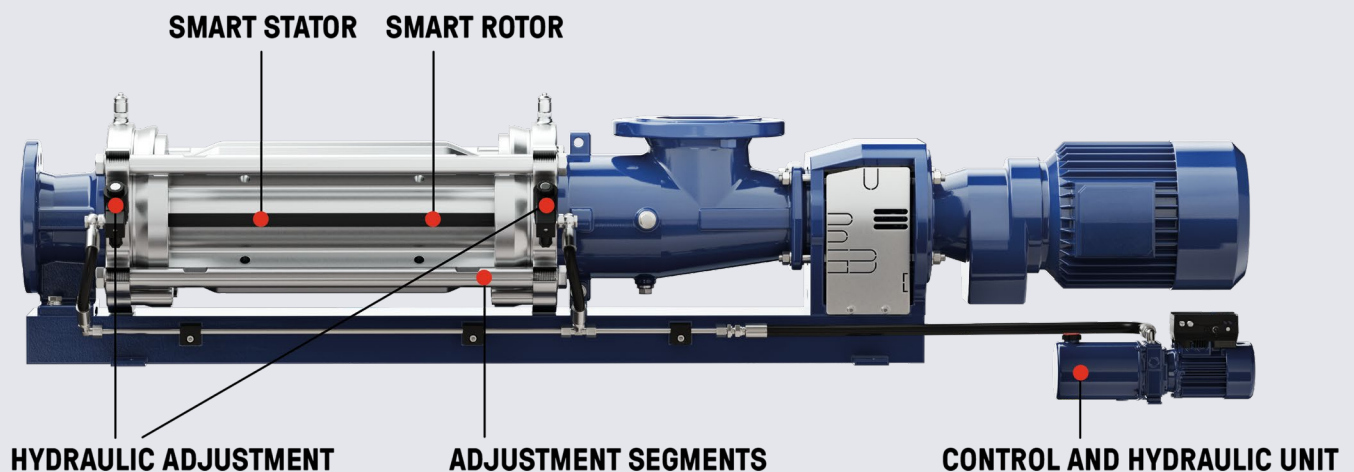
Through advancements in Industry 4.0 technology, SEEPEX has refined its range of progressive cavity pumps to introduce the pump generation of the future, today.

The unique patented SCT AutoAdjust technology, in combination with SEEPEX digital solutions, enables remote

adjustment to maintain pump performance at the optimal operating point without onsite manual intervention.

The next evolutionary step in Smart Conveying Technology (SCT), the design of SCT AutoAdjust maintains the same design features of SCT, while incorporating hydraulic controls to restore and maintain pump performance.

All with just one click, and without the need for special tools or replacement components, SCT AutoAdjust enables the pump's efficiency to be restored remotely and adapt to changes in process conditions. This translates into significantly improved uptime, longer service life of components, reduced need for spare parts and lower life-cycle costs.

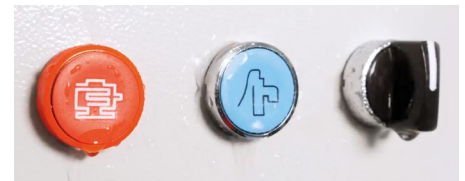
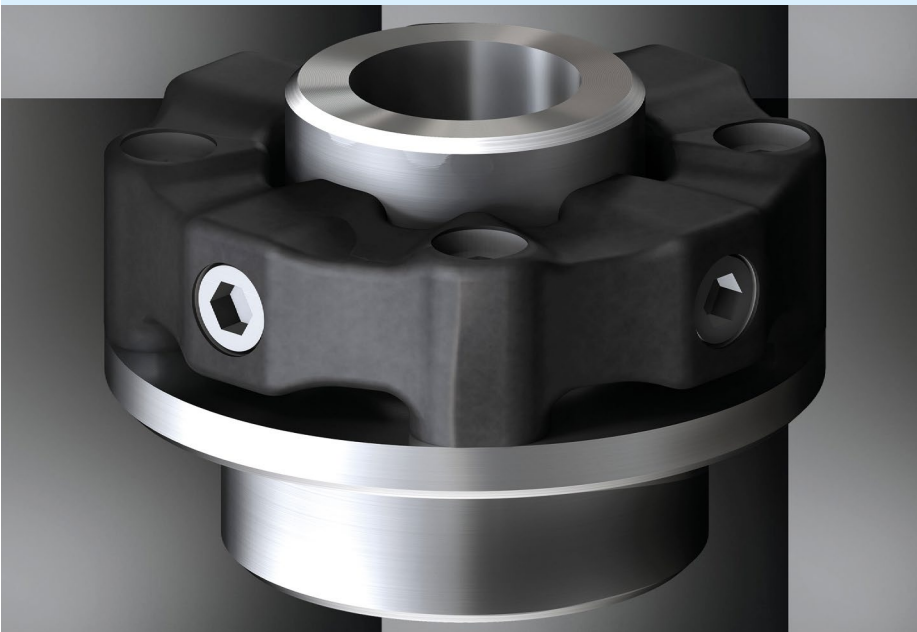


EVOLASTIC® The highly elastic shaft and flange coupling

KTR's EVOLASTIC® is a highly flexible, non-slip and backlash-free shaft and flange coupling for versatile application in a large number of main and auxiliary drives in mechanical and plant engineering.

The elastomer element prestressed to pressure enables the coupling to reduce torsional vibrations in the drive train and smoothly absorb overload shocks while damping structure-borne noise efficiently. In parallel, it operates in three dimensions (axially, radially and angularly), compensating for above-average displacements.

The basic versions distinguish between directly screwed and plug-in types. They cover all functional mounting conditions ranging from the finished individual element through hub/hub and flange/hub applications to the drive shaft. In addition, the product portfolio allows for highly individual and flexible mounting options tailor-made for the special application.



Flush-mounted pushbuttons for hygienic applications

The Schneider Electric range of Harmony flush-mounted pushbuttons available from BPX are robust, easy to clean and resistant to common disinfectant solutions.

Subsequently, they are suitable for a wide variety of industrial applications that require hygienic operating conditions, such as pharmaceutical production facilities and food and beverage manufacturing.

Available with a choice of metal or plastic housing and featuring unique colour variations such as red, blue, green and yellow, the Harmony Flush pushbutton range has been specifically designed to fulfil your control panel and machine interface requirements.

Your Toolbox Just Got Smarter

Take control of who can access your toolboxes and cabinets with the new range of smart toolboxes with access control and RFID tracking from Teng Tools.

They are easily unlocked by presenting an authorised keycard, and access is controlled by individual users, groups or job functionality. It is entirely up to you. You can even receive alerts for unauthorised access attempts! The toolboxes are mains powered however, battery-powered options are available on request and come in two worktop finishes, stainless steel or wooden.

The toolboxes can be configured to use different operating modes; Smart Access - Access control only; Smart Access - Access control with manual tool tracking and Smart RFID - Access control with RFID tool tracking.

The optional tool tracking module, combined with calibration monitoring, enables you to reach your tool control requirements, visibly demonstrate adherence to industry regulations, and provides a simple system for full accountability for tracking and returning tools.



Practising what we preach



Pete Townsend
Director of Engineering & Reliability Services
ERIKS

Improve efficiency. Maximise reliability. Employ innovative technology. Seek continuous improvement. They're not things ERIKS recommends only for customers. They're goals that ERIKS actively pursues for its own operations. And they are what lie behind an ongoing, multi-million pound programme of investment in ERIKS Engineering Services Division facilities: delivering the most effective motor, gearbox and pump repair, upgrade or replace anywhere in the UK.

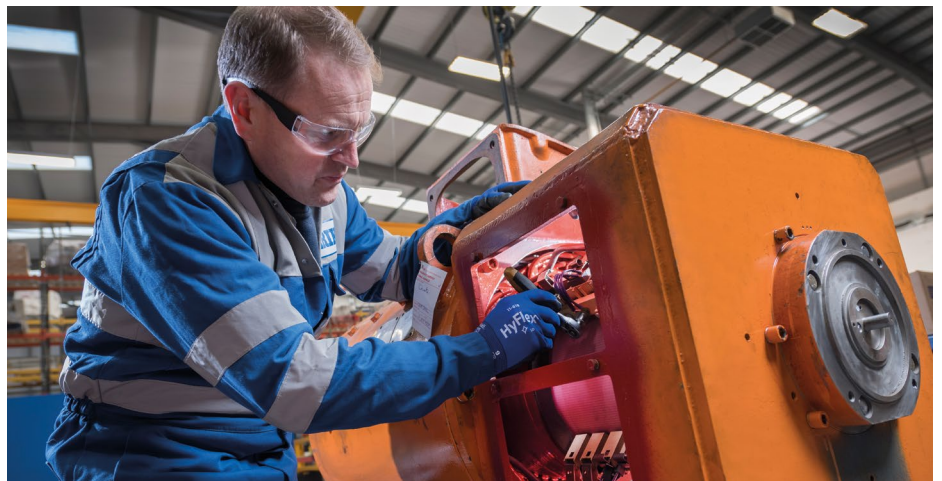


ERIKS is not the only motor, or gearbox, or pump repairer or supplier. But it is probably the only motor and gearbox and pump repairer and supplier. And the only one operating from a nationwide network of facilities, surrounding a core of centres of expertise and excellence.

“ Centres of expertise and excellence ”

Centres that set the standard for maintaining and supplying these key assets across a variety of industry sectors.

Continually upgraded, with investment which has continued over the past 5 years [see box-out], these centres operate cutting-edge services to meet ever-changing customer needs.



Repair or replace?

Whether to repair or replace assets is a key question for many industry sectors. Unfortunately the answer often depends on who you ask.

A repairer sees every broken-down asset as a prospective repair. A supplier always sees a potential sale. But ERIKS' repair, upgrade and replacement capabilities and expertise allow complete solution neutrality. So you will always be recommended the option which is best for you.

“ Complete solution neutrality ”

As the cost of smaller motors in particular increases, what was once a fairly simple choice for customers is becoming less clear.

With the purchase price of many smaller replacement motors rising by 30-40%, the break-even point has shifted and a repair is increasingly the more cost-effective option.

ERIKS is helping to make the decision easier by adopting standardised repair pricing.

Higher standards, standardised

As smaller motors become more cost-effective to repair, ERIKS is working to accelerate the process by introducing standardised service agreements and repair costs for standard equipment.

This not only speeds-up the turnaround time, but also makes costs more predictable and the repair/replace decision an easier one.

All work is still carried out to ERIKS usual high standards. But even so, there's a potentially even more cost-effective option: to predict failures in advance, and therefore minimise downtime.

“ Predict failures in advance ”

Predictability means reliability

The more you know about your assets and how they are performing, the better you can ensure their reliability.

ERIKS is strengthening its Reliability Services capabilities by investing substantially in the Strategic Asset Management (SAM) platform, and increasing the data collected and analysis generated for customers.

At the basic level, ERIKS' thermography service offers standard thermographic monitoring with standard pricing. It's quick, easy and cost-effective. For larger customers there's a remote online vibration monitoring option using Bluetooth-enabled sensors, with results visualised 24/7 on the ERIKS SAM platform.

A clear traffic light reporting system makes it easy to identify assets in need of attention, and the data generated also helps to provide valuable insights into asset performance, efficiency, and potential for improvement.

“ Valuable insights into asset performance ”

An even more sophisticated wired system, gathering multiple data feeds across all Condition Monitoring indicators (vibration, external temperature, energy consumption etc.) is in the process of development for a Q1 2022 launch. This system will help customers to move from fault-finding to true remote, real-time fault identification and diagnosis – helping to eliminate catastrophic failure, facilitate faster repairs and minimise downtime.

Our investment. Your return

The most advanced and extensive facilities. The most up-to-date technology. The most innovative monitoring solutions. The most experienced engineers. And the most cost-effective solutions. ERIKS continuing investment in repair and replace facilities and capabilities is helping to keep customers' assets operating at their most efficient for the longest possible time.

“ Operating at their most efficient ”

Customers in industry sectors from water to metals to legacy power stations are benefiting from ERIKS' investment. And it's what makes them return to ERIKS, time after time.

Investing in expertise

ERIKS has been investing steadily in dedicated centres of expertise and excellence, to provide customers with the highest levels of repair and replace capabilities across key assets.

ERIKS Southampton

A brand-new 1,800m2 facility, with particular strength in meeting the needs of the water industry. Improved craneage enables load lifting of up to 10 tonnes.

ERIKS Chesterfield

ERIKS' centre for high-voltage motors, featuring a world-class coil shop. Currently undergoing a £1m programme of upgrades. Specialist expertise in servicing the requirements of legacy power stations.

ERIKS Cardiff

The recent acquisition of personnel and equipment from a leading competitor, together with a site move, has consolidated this centre's capabilities and pumps expertise.

ERIKS Pensnett

SKF Certified Gearbox Rebuilder. Also home to the new ERIKS Remote Monitoring Centre, where technicians analyse data from customer sites in real time, to assist in fault diagnosis, repair and replacement planning, and data trending.

ERIKS Leeds, Grimsby

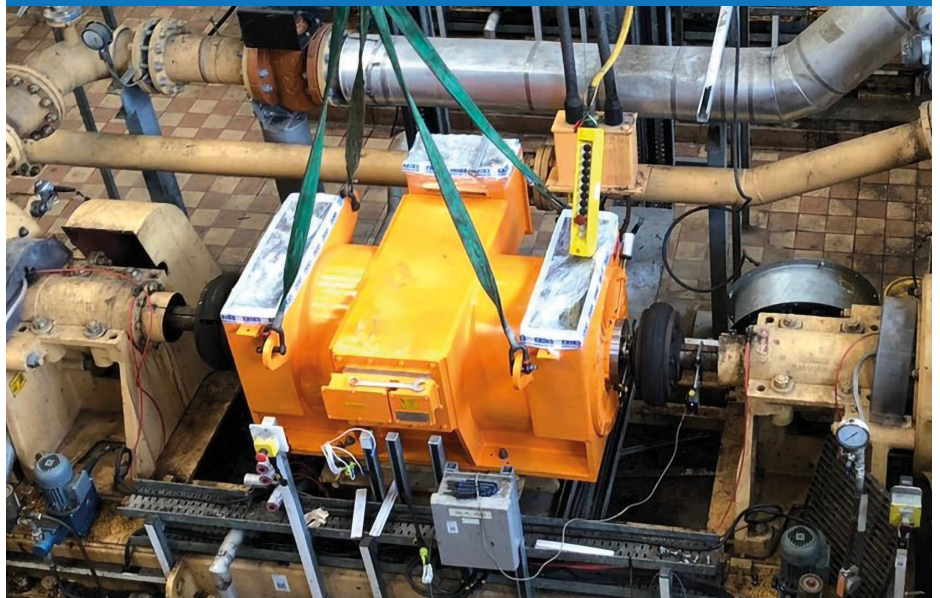
Technicians with pump expertise and experience, supported by extensive repair and replace facilities.

ERIKS Haydock

Benefiting from a £500,000 investment. Specialising in servo motors, and with facilities including an Hygienic Pump and Hose Assembly Cell.

ERIKS Norwich

Premises now tripled in size incorporate enhanced load test capabilities, including a purpose-built test panel. Machine shop capabilities have also been improved, with additional equipment and tooling.



The safe choice

Whether repairing or replacing assets, when ERIKS engineers work on a customer's site, health and safety are paramount – and market-leading.

All site staff complete a suite of training qualifications, including IOSH, CCNSG safety passports, First Aid, Safe team leading, and best practice for working in confined spaces. Site- or project-specific safety courses are also undertaken when required.

Extensive use of site-specific risk assessments and comprehensive method statements are supported by daily point-of-work risk assessments, safety report cards and hazard spots.

Online Vibration Monitoring

3 simple steps to improve productivity

1



ERIKS install and commission vibration monitoring systems on agreed assets

2



You receive daily asset condition reports, impending problems are highlighted

3



Receive suggested recommendations for problematic assets, to plan and schedule maintenance



Creating a 21st Century Fulfilment Centre of Expertise



Andy Neville
General Manager FCE
ERIKS

In the last twelve months, we've seen an unprecedented series of shocks to international supply chains. A crisis that began with worldwide Covid pandemic lockdowns has been exacerbated by a growing sequence of challenges, ranging from the chaos caused by the grounding of the Ever Given container ship that blocked the Suez Canal for 6 days, to a worldwide shortage of semiconductors.

In the UK, the situation has been further aggravated by issues caused by Brexit and the track and trace pandemic, with shortages of HGV drivers and key workers in warehousing, logistics and retail disrupting the supply of industrial and consumer goods. Most forecasters expect the situation to deteriorate further in the coming year.

The speed and extent of supply chain disruption may be unprecedented, but the fundamental requirements of customers remain unchanged: the ability to source products from trusted suppliers and to be able to access those products where and when they need them. Predictability, consistency and reliability of supply are vital.

Building for the future

We couldn't have predicted these short-term supply-side shocks. But our position at the heart of the industrial supply chain allows us

to understand the underlying factors that are driving longer-term change, and to develop solutions that are resilient, agile and future-proof – solutions that help our customers cope with whatever challenges come their way, no matter how tough.

“ Solutions that are agile and futureproof ”

We're therefore developing a dynamic industrial distribution model. At its core is a multi-million pound investment in a new Fulfilment Centre of Expertise and UK Headquarters. This has recently been opened in Oldbury, in the West Midlands.

The FCE and what it means for you

The Oldbury Fulfilment Centre of Excellence (FCE) sits at the heart of our nationwide network of local distribution and specialised engineering service centres. It replaces two existing distribution hubs, bringing a 53% increase in capacity, with considerable potential to meet future demand.

Look inside and you'll see a unique combination of 21 high speed lifts, integrated with over 400m of rapid transit conveyors and vertical racking with capacity for 11,200 Euro pallets.

This automated, high-speed operation is controlled by the latest Industry 4.0 warehouse management technology, interconnected with sophisticated pick-to-light, scanning, vision and weighing systems, and with our company-wide ERP systems; in



time, we'll extend this connectivity to give customers real-time access to their orders.

Our goals are simple, to:

- Stock the exact products you need
- Deliver the right products every time
- Supply products to you faster
- Give you end-to-end visibility
- Support your future growth

Data, accuracy and speed of response

Our investment in the latest warehouse technology is a crucial component in our drive to deliver exactly the right products to each customer, on time, every time. We are, for example, already able to achieve a 30% increase in picking-speeds and are striving for consistent, 100% pick-accuracy.

Key to this is our ability to capture and analyse vast amounts of live data and then to adapt our processes dynamically. Our new systems provide advanced capabilities such as real-time stock level monitoring, customer-demand profiling and automatic reordering.

At a shop-floor level, our integrated systems allow us to track, trace and pick efficiently,

“ Track, trace and pick efficiently ”

while optimising the location of fast-moving products to increase pick-speeds. Similarly, to enhance efficiency and accuracy still further, all goods-in consignments are fully inspected and quality checked on arrival. They are then checked again when they are picked and receive a final scan and check-weigh before despatch.

This end-to-end tracking process ensures precise stock control and 100% stock availability.

Industrial strength CX

We already work closely with many of our customers and have developed a range of fulfilment, engineering and technical and commercial support services to help customers derive significant value from our relationship. The new FCE will allow us to strengthen this offering, while building the foundations that will help us offer a customer experience that we believe will set new standards for our sector.

At a practical level, the adoption of automated warehouse and intelligent stock management technologies enable us to work faster and more efficiently than ever before.

They also release key members of our team across the UK and Ireland to focus on the vital areas of customer communication and collaboration, offering the technical and commercial knowledge, experience and insight that help customers improve their productivity, performance and profitability.

“ Improve productivity, performance & profitability ”

Our new Oldbury FCE is a cornerstone in a strategic long-term investment programme that will create the industrial supply chain and engineering service matrix of the future. It's a future that is smart, interconnected and agile; a future where we're able to provide every customer with the supply chain security, flexibility and confidence to meet fresh challenges in an ever-changing world.

- Over 11,000 square metres of warehouse space
- 15 vertical lifts
- More than 400m of high-speed conveyors
- One of the most advanced warehouse management systems anywhere in the UK
- Sophisticated scanning and weighing systems for every order
- Robust I4.0 configured IT infrastructure with real-time monitoring





When Dublin had too many tram stops



Tony Summersby
Application Engineer, Power Transmission & Flow Control
ERIKS

When a tram stops at a tram stop, that's good. When it stops anywhere else, because it's broken down, that's not so good. It not only blocks and disrupts the whole tram network, but in the case of Dublin's Luas Light Rail system, it also puts the operator at risk of a fine. Transdev – operator of Dublin's network – asked ERIKS Dublin to get on board and help.

The trams in question are first-generation models which have been operating since 2006. Unfortunately, soon after their introduction, it became clear that the brushed DC motor and pump assembly, which controls the flow of Glycol coolant to the tram's main traction motor, was insufficiently reliable. And when this motor control unit fails, the tram shuts down until the fault is rectified.

This caused problems for many years, with motor commutators continually needing repairs, and motor brushes and bearings needing frequent replacement. The pump was also an issue, as it was custom-designed and by 2020 no longer available.

When the pandemic hit, a 75% reduction in passengers per tram was imposed to enable social distancing. This meant there was an urgent need to run more trams. But with frequent breakdowns, extensive downtime for maintenance and long lead times for spares, more trams were often simply not available.

It was a perfect storm for the operator, the tram network, and the passengers patiently waiting by the roadside. Clearly, according to anyone's timetable, it was time to do something drastic.

“ A perfect storm ”



DC or not DC? That is the question

Transdev needed to find a replacement DC motor for the Luas Light Rail system trams. ERIKS Application Engineer Tony Summersby identified two possible options: one brushless and one brushed.

A replacement pump from KSB – an ERIKS pump supply partner – was also sourced, matching the existing pump specification and performance, but with a standard rather than custom-designed product. EPDM hoses and ancillary spares were the final pieces placed in the jigsaw.

Initial tests proved disappointing. Both motors successfully operated the pump, but there were noise problems which – as the MCUs are roof-mounted – meant an unpleasant ride for the passengers. In addition, there were problems with fluctuations in hydraulic performance.

But sometimes motors are just like trams. When you want one, three come along at once.

ERIKS proposed replacing the existing 24V DC motor with a third option: a 400V 3-phase AC motor and pump assembly. This would also require a new DC to AC power supply to the MCU, as most of the trams' electrical systems operate on 24V DC.

“ 70,000km of trouble-free operation ”

Essential travel

The tram network is essential to travel in and around Dublin. Finding the ideal motor was essential to Transdev.

So ERIKS Pump Specialist Geoff Mason was given special exemption for essential travel to Ireland during the Covid restrictions. This meant he was on hand to help with more trials of the DC motors and the AC option, at Transdev's Maintenance and Operations Depot in Dublin.

By the end of the trials it was clear that the AC pump / motor option was the most successful solution – providing constant hydraulic performance with negligible noise and low power consumption.

The next step, in late 2020, was the installation of the AC option on 5 Luas trams.

These have now completed over 70,000km of trouble-free operation. Meanwhile, ERIKS has upgraded 15 more MCUs to the AC motor and pump assembly.

Room for more benefits inside

The increased reliability of the MCU means less downtime, fewer repairs, and more trams in operation more of the time. Which means more happy passengers and fewer fines for Transdev. But that's not all.

By standardising the AC motor and pump, ERIKS has reduced the lead time for both the assembly and spares. By eliminating the brushes and commutator required with a DC motor, there's less maintenance. And what was once supplied in three separate parts now comes as a single assembly – reducing the number of suppliers and minimising potential supply chain issues.

Not surprisingly, Transdev has requested conversion of the entire Luas fleet of 44 trams to the AC solution. So now when a tram stops it will only be because someone wants to get on or off.

Keeping the river on stream



David Manning-Ohren
Technical Manager Smart Asset Management
ERIKS

Of all the things you can think of that might bring steel production to a halt, lack of water probably wouldn't be the first. But without sufficient water, steelmaking would have to stop. That's why a major UK steel producer relies on numerous pumps to extract river water and fill reservoirs feeding its production sites. And why pump condition monitoring is so essential to keeping the business's head above water.

“ Pump condition monitoring is so essential ”

One of the major steel production sites extracts its process water supplies from a tidal river. Water can only be extracted at high tide, which varies in duration from two to six hours depending on the phase of the moon. The water is pumped from the river into storage reservoirs, then drawn down in

variable quantities and at varying times to meet the demands of production.

Given the varying duration of the extraction window, and the unpredictable water usage, it's essential the pumps are ready to run at any time, to pump as much water as possible. For this reason the pumping site is equipped with three tidal pumps among the other post reservoir pumps. Normally two are operating and one is on standby, but at key times all three may need to be running. So an effective condition monitoring and predictive maintenance regime is essential.

To assess the benefits of this kind of regime, the customer made an initial purchase for the monitoring of 12 pumps, supported by ERIKS Online Vibration Monitoring solution.

Fire prevention or fire engine?

Condition monitoring of these particular pumps has complications.

Firstly, there are only small windows of runtime for generation of vibration data. Secondly, those runtime windows can be at any time, so an engineer won't always be on hand to carry out monitoring. (In fact the customer had been managing to monitor



only a third of the operational running times.) And thirdly, by the time sufficient data has been collected and interpreted, it may be too late and pump failure could be imminent or have already occurred.

So would you rather have information to help you prevent a fire, or be promised a fire engine will arrive quickly once the fire's burning? Would you rather be warned you're at risk of a heart attack, or be told you're having one?

“ Makes monitoring more effective ”

That's the difference between traditional condition monitoring, ERIKS' Reliability Services, Online Vibration Monitoring. ERIKS' solution makes monitoring more effective, and data more timely and usable.

Sensing trouble

The pumping station was chosen for a trial of wire-free vibration sensors. Mounted on the station's pumps, the sensors gather vibration data periodically – usually every two minutes. This provides comparative data from when the pumps are operating and when they are not, making it possible to identify any induced vibration issues.

The results were almost immediate – and dramatic.

Both ERIKS' online vibration monitoring and the customers' own engineers identified a problem with an in-service pump. So before it could fail completely, it was swapped-out for a recently repaired replacement.

However, within just 24 hours, ERIKS wire-free sensors picked up a change in the normal operating parameters of the replacement pump, and reported it via the Smart Asset Management dashboard. Then, over a matter of days, the pump's alert status on the dashboard passed through several shades of green and yellow, to red.

Under a traditional condition monitoring timetable, it would have been around a month before the engineers had visited again. The pump would have failed catastrophically long before then.

Thanks to the early alert, engineers quickly attended the site, discovered the replacement pump had been incorrectly reassembled during its repair, and fixed the issue before failure could occur.

Data v. Information

It's not only wire-free sensors and opportunistic monitoring – during the smallest runtime widows – which make the ERIKS online vibration monitoring solution so effective.

It's also the way the data generated is used.

Traditional condition monitoring swamps users with too much data, which by its nature can only be taken infrequently – meaning it

can often be delivered too late. It's the 'you're having a heart attack' scenario. ERIKS' online vibration monitoring, on the other hand, identifies and monitors key failure-mode variables. These provide less dense data, but more useful, data, which can be taken more often and delivered with greater timeliness.

This is only possible because of ERIKS' comprehensive reliability services, combining decades of repair and monitoring experience. ERIKS know what trends, variables and deviations lead to failures. And ERIKS Digital build this know-how into the algorithms powering the ERIKS Smart Asset Management dashboard, and driving the alert notifications.

So ERIKS online vibration monitoring doesn't just give you data. It gives you information you can act on.

“ Information you can act on ”

Now the steel producer is rolling-out more systems to more pumping stations, and considering them for monitoring ancillary equipment for the main turbines at their production facilities.

Starting from just a handful of water pumps, the success of ERIKS' online vibration monitoring and Smart Asset Management platform has really opened the floodgates.

A real 'win, win, win, win' solution



David Oliver
Channel and Platform Manager



Spherical roller bearings often operate in challenging environments with virtually inevitable dirt ingress and bearing grease loss. In fact, independent SKF analysis has shown that 50% of premature bearings failures are caused by poor lubrication or ingress of contaminants.

What's more, since the assets that rely on bearings for operation are often those crucial to your production processes, any downtime can lead to costly stops in manufacturing.



A full range of reliability

In most industrial environments, every minute of downtime is critical. Contaminated environments, heavy radial and axial loads, misalignment, problems with leaking grease all add to the growing costs, and not to mention the potential risks to workplace and worker safety.

But with sealed SKF Explorer spherical roller bearings, you are fully equipped to meet these challenges head on.

Pre-lubricated with a specially formulated grease and sealed with high-performance contact seals, they can protect the bearing and lubrication from contaminants that might otherwise cause premature bearing failure.

Their high load capacity and ability to accommodate misalignment further helps to reduce maintenance costs and prolong bearing service life. By keeping contaminants at bay and lubrication in, SKF Explorer spherical roller bearings simply provide longer meantime between failure, reduce overall costs, improve worker safety, and reduce your environmental footprint.

Did you know, by switching from an open to a sealed design makes it possible to increase bearing rating life by up to four times in the contaminated environments typical of heavy industrial applications? A real long-term investment for increased machine availability and reliability, you might say 'they are the future of reliable operations.'

Improving H&S

Recent HSE analysis has indicated that 25-30% of manufacturing industry fatalities in Britain were related to maintenance activity and slips, trips and falls account for 29% of non-fatal UK workplace injuries – very harrowing and damning statistics.

One of the common maintenance practices for open bearings is to purge the bearings with grease – increasing costs, as well as increasing health and safety risks for maintenance personnel, as bearings are often located in inaccessible and hard to reach areas of industrial plants and associated machinery.

So, by introducing sealed SKF Explorer spherical roller bearings to your assemblies, grease leakage and spillage are reduced through the removal of purge processes.

“ Grease leakage and spillage is reduced through the removal of purge processes ”

The combination of increased MTBF and reduced lubrication activity means fewer maintenance interventions, helping to reduce the risk of injury to your employees.

Helping the environment

In many typical applications, sealed SKF Explorer spherical roller bearings can be considered lubricated for the full life of the

bearing; in other large size applications, these bearings have been proven to reduce grease consumption by up to 95% leading to lower environmental impact and costs.

“ Proven to reduce grease consumption by up to 95% ”

Additionally, by protecting the bearing in operation, the possibility of remanufacturing large sized sealed spherical roller bearings, not just once, but twice, is increased. Depending on the amount of remanufacturing required, up to 90% less energy is needed to remanufacture a bearing instead of manufacturing a new one from scratch.

“ Up to 90% less energy is needed to remanufacture a bearing ”

Think of it this way... with potentially 95% less grease consumption, and 90% less energy for manufacturing, it's hard to say that sealed SKF Explorer spherical roller bearings aren't the most environmentally conscious option.

Not short on options

SKF offers the industry's widest range of sealed spherical roller bearings, with bore diameters ranging from 25mm to 1250mm.

In fact, SKF are the only manufacturer whose full standard range of spherical roller bearings up to an outer diameter of 420mm are all available sealed, off-the-shelf.

Additionally, certain bearings in the 222- and 223-series are designed slightly wider to accommodate the seals; but over 100mm bore, most of the series are dimensionally interchangeable with their open cousins.

With a new design that results in up to 50% less seal friction, SKF's small sealed spherical roller bearings also reduce operating temperatures by as much as 20°C, enabling SKF to double the limiting speed rating. As a result, more applications can benefit from the superior contamination protection of sealed SKF spherical roller bearings.

Add real value

Extending maintenance intervals, improving productivity, and reducing grease consumption, application, and disposal clearly offers tangible reductions in your Total Cost of Ownership [TCO]. So, when combining with lower risk to employees and less environmental impact, why wouldn't you consider switching to sealed SKF spherical roller bearings if you're looking to add real value to your business.

Unlike some other costly, complicated solutions, SKF sealed Explorer spherical rolling bearings offer a quick and simple solution, with minimal capital cost outlay and very short return on investment.

Taking into consideration all of the advantages over open bearing assemblies and other bearings on the market, SKF sealed Explorer spherical roller bearings are 'a real, simple win, win, win, win solution.



Sealed for Success

Benefits of using SKF Explorer bearings include:

- Significantly extended service life
- Increased uptime and productivity
- Extended lubricant life
- Reduced sensitivity to misalignment
- Reduced noise and vibration
- The prospect of downsizing applications



Threadlockers blow wind of change in the renewables sector



Bob Orme
Senior Technology Expert
LOCTITE

Threadlocking adhesives have a long and successful history in many industrial sectors, but with an industry wide push towards renewable energy, there is growing evidence to suggest that this particular sector is increasing its uptake of such advanced products.

Among the drivers behind this notable trend at wind farms is the fear of vibration loosening and corrosion, effects that often lead to the catastrophic failure of conventional mechanical locking devices such as spring washers, nylon ring nuts, and flat washers.

Most commonly, damage and mechanical issues regarding fasteners on wind turbines occur on what are labelled as critical assemblies such as blades, gearboxes, generators, drivetrains, and brakes – all of which are housed in the nacelle. But there are many factors at play here.

For instance, even when the blades are not turning, a turbine can still be considered a moving structure. High winds, for example, will cause the tower and nacelle to sway, producing mechanical stress and vibration along the entire height of the structure. Furthermore, it is well established that several structural elements of wind turbines are subject to expansion and contraction as temperatures fluctuate.

In fact, some turbines experience drastic changes in temperatures that extend from sub-zero during the winter months to more than 38°C in the summertime.

Get a wind of this

Typical wind farm applications for threadlocking adhesives include the locking and sealing of dozens of fasteners on the yaw and main rotor bearings, as well as the nacelle panels. Available in a variety of strengths, threadlockers provide outstanding temperature resistance, faster fixture and cure speeds, and straightforward dispensing.

Threadlocking adhesives also act as lubricants during fastener tightening, so instead of dissipating torque as friction and heat, the conversion of applied torque to high clamp load is improved. Once cured, threadlockers offer a reliable seal and prevent effects such as galling and corrosion, which can seize threads.

Vibration leading the problems

The leading cause of threaded fastener loosening is vibration. Excessive vibration can lead to a loss of clamp load and, ultimately, failure. As a consequence, clamp force must meet the design specification when the fastener is first assembled and remain at that value throughout its entire operating life.

Every engineered component located in the nacelle is a concern when it comes to fasteners, as are the staircases required to reach them. If you're unfamiliar, nacelle access on a large commercial wind turbine requires maintenance professionals to climb a series of ladders that can take them more than 90 metres above ground level. Therefore, the method to which the ladder and treads are secured into position demands close attention.

First time build - secure

Fully aware of the dangers to both costly components and personnel, a wind farm that

recently erected its first turbine wanted to ensure that the bolts attaching the blade to the hub maintained the design torque and were protected from the corrosion that can occur following constant exposure to the elements.

LOCTITE® 243 threadlocking adhesive from Henkel proved to be the ideal solution, helping to not only prevent catastrophic failure by resisting vibrational loosening, but also by avoiding thread corrosion and maintaining fastener torque in the wing-to-hub assembly.

To explain a little more about the science behind this technology, a fastener's ability to remain secure is compromised by the inherent tiny gaps present between the surfaces of the mating thread. These gaps permit micro movement to occur that, throughout time, loosen the fastener and result in a loss of clamp load.

The growing popularity of threadlocking adhesives such as LOCTITE® 243 results from their capability to completely fill the voids between interfacing threads, thereby preventing any opportunity for micro movement.



In thwarting both vibration loosening and corrosion, the adoption of threadlockers at the wind farm is circumnavigating the risk of fastener failure and will in turn make disassembly easier if, and when, the necessity arises.

As easy as 2-4-3

A LOCTITE® Engineering Solutions Expert assisted a wind farm team in the removal of the protective shipping covers from the exposed bolt threads and cleaning of their steel fasteners. The team were then able to insert the blade into the main hub, apply LOCTITE® 243 to the fasteners, correctly torque the blade-to-hub assembly in accordance with the specification, and mounted the hub to the generator drive system.

Now, with corrosion-free fasteners that maintain clamp load, and which are easily disassembled at a predictable break-loose torque, the wind farm is assured of safe, maintenance-free wind turbine operation until its next scheduled downtime for routine checks.

Breaking the mould

Anaerobic threadlockers such as LOCTITE® 243 – which is part of an extensive range offered by Henkel – are one-part adhesives that, in the absence of air, form into tough thermoset plastics when applied to metals. These products deliver 100% contact between metal components, which contrasts greatly with a typical untreated nut and bolt assembly, where as little as 15% metal-to-metal contact is commonplace.

The latest breakthroughs in the stability and reactivity of anaerobic chemistry have resulted in the availability of standard liquid and stick formulations to suit different applications. Moreover, high-lubricity anaerobic threadlocking adhesives effectively reduce friction, making them particularly suited to the large diameter, high-strength fasteners found on wind turbines.

Such adhesives are also formulated to deliver enhanced oil tolerance, ensuring their suitability for use in turbine gearboxes and other moving parts exposed to lubricants.

Another attribute is excellent performance without activators. These innovative formulations are perfect for use on plated and stainless fasteners as they eradicate the need for cleaning and cure rapidly.

Ultimately, the growing adoption of threadlocking adhesives by the wind farm sector is resulting in safer, longer-lasting fastened joints, which in turn supports the uninterrupted supply of renewable energy as the world transitions to a greener future.

For more information on Henkel's comprehensive range of LOCTITE solutions, please contact your local ERIKS Service Centre, who will be happy to discuss your options.

Blowin' in the wind - preventing white etching cracks in rolling bearings



Sally Sillis
Schaeffler Technology Centre Manager
SCHAEFFLER

White etching cracks signify damage within the microstructure of steel, drastically shortening the reliability and operating life of bearings in wind turbines. However, thanks to Schaeffler UK, help is at hand via a wide range of innovative solutions.

Wind power is one of the fastest growing sustainable technologies – with 93GW of new capacity installed in 2020 – a record year for the industry. Today, there is 743GW of wind power capacity worldwide, helping to avoid over 1.1 billion tonnes of CO₂.

Yet this level of adoption is not sufficient to make sure the world achieves net zero by 2050. In fact, countries across the world need to be installing wind power three times faster over the next decade to meet this target and avoid the worst effects of climate change.

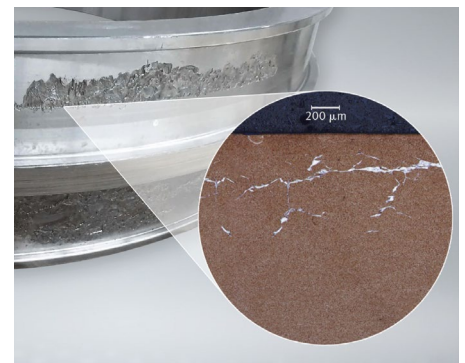
Minimising total cost of ownership

As more wind turbines are installed, the issues that could hinder their operational effectiveness are under increasing scrutiny. Obviously, if a wind turbine is not being used, it cannot produce clean energy, while maintenance, repair and operations

[MRO] costs can soar, particularly in the case of offshore wind farms. The reliability of components therefore plays an essential role in minimising TCO, maximising operational efficiency, achieving regulatory compliance, and enhancing worker safety.

The development of larger, multi-megawatt wind turbines has resulted in significantly higher forces, torques, and loads. With such a wide range of bearings performing different functions within a wind turbine's structure, white etching cracks (WECs) have become a major cause for concern.

WECs are structural changes in the material that appear below the surface of the bearing – the material is weakened, and micro-cracks on the inner or outer ring, drastically shortening reliability and operating life. These cracks are known to occur in both



through-hardened and case-hardened rolling bearings.

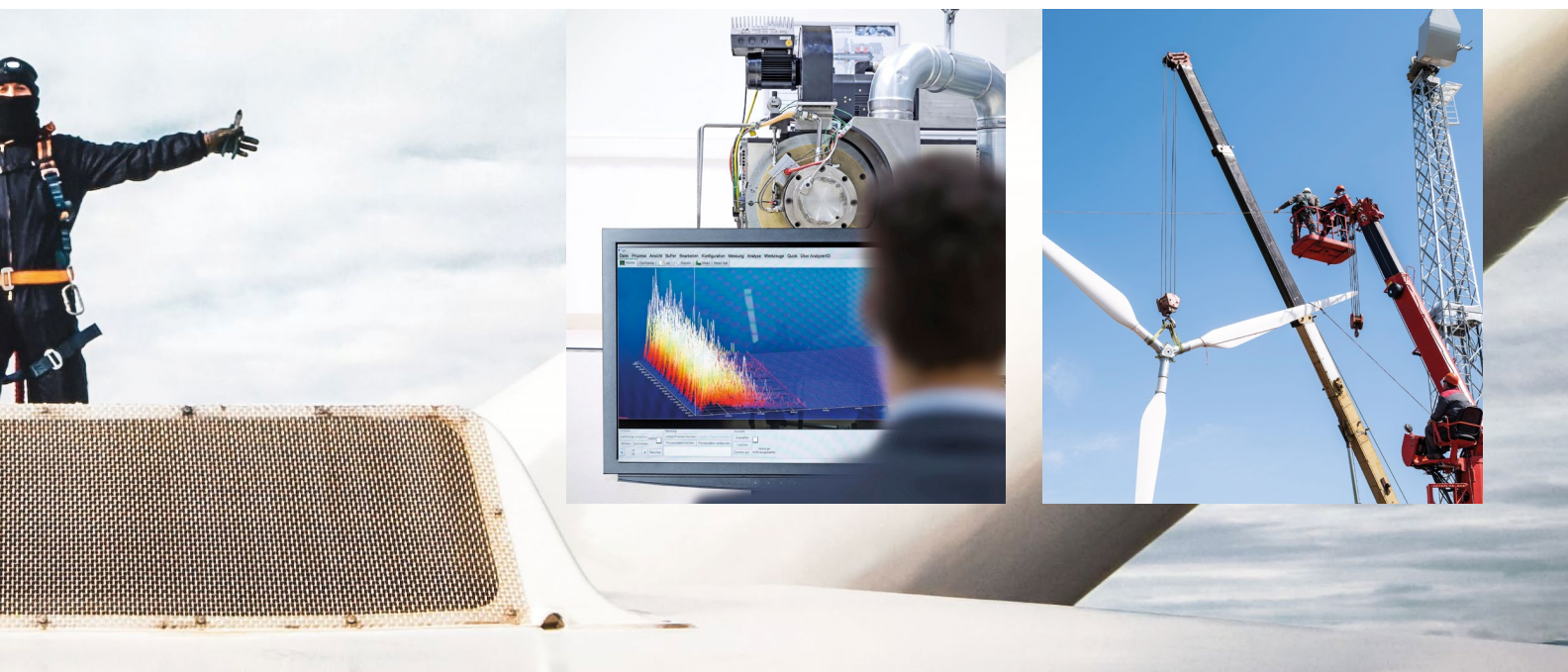
WECs are not caused by influences that could have an effect on component fatigue such as contact pressure, insufficient level of steel purity or overloading. In fact, it is still not completely clear what causes WEC to occur. However, according to recent research, additional stresses in the form of dynamics, mixed friction, and the effects of electrical systems are most likely to create the conditions required for WECs to form.

Research and development

Schaeffler has been producing bearings for wind turbines for more than 30 years, including high-performance bearing solutions for rotor shafts, gearboxes, generators, and wind tracking systems. Now the number one global manufacturer for bearings for this sector, Schaeffler's experts work in close cooperation with wind turbine developers, manufacturers, and operators to develop a range of innovative solutions aimed to increase the resistance of bearings to WECs, preventing premature failure.

To further their knowledge and best practice expertise, Schaeffler has invested





in comprehensive test facilities for creating WECs, enabling them to analyse causes and concept solutions. This research has enabled them to reduce the risk of WECs occurring by optimising the design of bearings and selecting the most appropriate lubricants and other materials for individual bearings components.

Schaeffler uses state-of-the-art calculation and simulation software program to ensure that the optimum design can be developed for a range of bearing applications. This is considered as part of its service – starting from a single rolling bearing and its components, through to the adjacent construction and the entire power transmission system. It also includes a range of remote condition monitoring systems and diagnostic programs. Through this wealth of expertise, Schaeffler is now the leading provider of wind turbine MRO services worldwide.

A solutions provider

The solution that Schaeffler recommends – which has been statistically verified – for the efficient and cost-effective reduction of WEC damage is the through-hardening of the bearings, in combination with a black oxide coating on the inner ring, outer ring, and rolling elements – with Schaeffler experts developing an ideal coating system that significantly increases a bearing's resistance to WECs.

The Durotect B coating system has been developed from conventional black oxide finishes to give increased performance, minimising the risk of damage caused by slippage, improving run-in behaviour, increasing corrosion resistance, and the enhancing the level of protection against WECs.

In fact, research has shown that WECs have occurred in less than 100 out of 1 million through-hardened bearings with black oxide or Durotect B coating that were produced and delivered by Schaeffler for use in wind turbines since 2005. This corresponds to an incredibly low failure rate of less than 0.01%.

For applications that require high load ratings, Schaeffler also offers rolling bearings made from Mancrodur carbonitrided steel and coated with Durotect B. For those who aren't familiar, carbonitriding involves subjecting the bearings to a special heating process in which the bearing surface is enriched with carbon and nitrogen, increasing surface hardness and wear resistance.

Strength and durability

Similarly, Cronidur special steel with high chromium content can be used to completely eliminate the risk of WECs. Cronidur 30 is a martensitic through-hardened steel that, due to its alloy composition – carbon, nitrogen, chromium, and molybdenum – exhibits exceptional corrosion resistance, strength, durability, and high temperature hardness.

An inspection programme carried out by Schaeffler to determine individual solutions for different applications and additional stresses showed that no cases of WECs occurred in bearings with Cronidur 30.

Bearings for wind turbines can also suffer damage due to the passage of electrical current, so in order to prevent this, Schaeffler has developed a ceramic insulation coating. Commonly used for wind turbine generators, Insutect A is applied using the plasma spray method, then sealed and applied to the outer ring [J20AA] or inner ring [J20C].

Coating variants are available to suit a range of different bearing applications, helping

to prolong the life of your bearings, as well as offering a cost-effective solution for preventing damage due to the passage of current.

Avoid costly unplanned downtime

Another method of avoiding premature failure of your bearings is to ensure that the main bearing arrangement and its lubrication are perfectly in sync. For example, 10MW offshore wind turbines that are intended to be operational for a minimum of 25 years, costly maintenance work must be kept down.

This is essential, as the cost of dismantling bearings and replacing components can incur exponential costs. The rental costs of boats, cranes, and other equipment for replacing a main shaft bearing alone, can be as high as €800,000.

In these circumstances, any unplanned downtime can last up to 20 days. If the customer loses 2.2 million kilowatt hours during those 20 days, costs can rise to a further €200,000.

Therefore, the savings achieved by avoiding unplanned production stoppages can reach approximately €1 million, proving that the correct amount of grease for the main shaft bearing is truly essential.

Take the best foot forward

Machine elements in modern mechanical systems are subjected to increasingly harsh operating conditions and wind turbines are no exception.

WECs continue to be a cause of the premature failure of rolling bearings, and while research from Schaeffler into what causes this to happen remains ongoing, the good news is that there is a practical and proven coating system that significantly increases a bearing's resistance.

Trustworthy technology that delivers improvements



Dennis Briggs-Price
UK Aftermarket Field Sales Manager
NSK

All mechanical components have a finite life, determined by factors like design, quality, operating conditions, and load cycles. In today's high-volume and high-cost production environments, it is often the life of a single bearing that dictates the efficiency of an entire production line. Reliability, therefore, is essential.

NSK's AIP Added Value Programme is a proven continuous improvement philosophy that supports a future-proof business model and presents a real opportunity to unlock additional profitability through enhanced machine reliability, knowledge, skills development, and reduced working capital. This powerful and practical toolkit encompasses a full menu of NSK engineering and service solutions.

With AIP, it's possible to make customer operations and maintenance processes far more efficient and, therefore, far more profitable. In fact, AIP can assist you in saving money at every stage of the programme, enabling end-users to secure, or even expand, a competitive edge by significantly improving processes and productivity.

Therefore, the engineering services of AIP aim to enhance machine reliability by finding better, more sustainable, and cost-effective solutions – adding real added-value to the supply chain. This is why NSK's AIP carries the strapline 'Improvement Pays.'

Value proposition for 'Plant, People and Processes'

Identifying an efficient bearing solution is often a complex procedure that requires specialist knowledge and experience. It also calls for a carefully planned approach with a specific goal of increasing the productivity of machines and plant.

AIP, and its associated five-step value cycle – Evaluation, Recommendation, Implementation, Validation, and Extension –

is a standardised, tried and test process, as an increasing number of projects can now demonstrate.

Starting with Evaluation, the NSK team assesses the plant's/workshop's status quo and identifies areas of improvement, before moving onto the subsequent four steps of the cycle. Throughout the entire process, AIP experts work closely in conjunction with end-users to determine any possible issues, while working on an optimal solution and continually monitoring and assessing, until there is complete confidence in the results.

One of the most powerful elements of AIP is a process map, which focuses on creating a complete documented review of the production process from start to finish, placing particular emphasis on critical bearing applications. The AIP team then documents every bearing application and reference, the operating environment and, most importantly, how this environment can affect bearing life. Subsequently, the team will identify possible solutions using its experience and expertise. In essence, the end-user receives a clear roadmap to improving the life of their bearings, while reducing unplanned downtime and associated costs.

In addition to recommending optimised bearing solutions, NSK also provides information on machine component design, available part numbers and running conditions, while bespoke training is readily available to support customer personnel. By strengthening their bearing knowledge, employees such as maintenance staff can help to improve machine reliability and overall profitability through reduced TCO (total cost of ownership).

“ Poor assembly techniques are the cause of up to 20% of all bearing related problems ”

The perfect fit

It goes without saying that correct bearing installation is a vital aspect in achieving machine reliability. Estimates suggest that poor assembly techniques are the cause of up to 20% of all bearing related problems, with installation damage ranging from raceway indentations, to seal deformation, or even cracked rings. When damage occurs, the bearing will not perform to its life expectancy, prompting premature failure and an increase in customer downtime and maintenance costs.

Fitting a bearing correctly requires the use of special tooling in order to apply

“ Improve machine reliability and overall profitability through reduced TCO ”

the necessary force in the right place, or by heating components to achieve easy assembly. To assist customers in achieving the optimum result, time after time, NSK offers a range of maintenance tools as part of AIP+.

For example, the FTN333 kit for bearing installation contains a manual impact hammer with attachments that allow the safe fitting of bearings onto shafts and in housings. The wide high-impact head covers both the inner and outer rings simultaneously, thus avoiding striking a single component and causing internal damage.

Or for times when the mechanical process is too aggressive, NSK recommends the use of an induction heater that safely heats the bearing, expanding the inner ring so it can slide easily on to the shaft without damage.

Once in place, performing an alignment process will help keep the bearing running square and for longer. For machines that employ pulleys and belts, NSK LAB-SET will snap into the grooves, so the dual lasers can quickly and easily identify any mounting errors.

NSK offers LAS-SET – a twin laser system that can accurately align couplings up to 2m apart, with an intuitive display guiding the user through the correction process,

including soft foot checks and shimming.

Again, NSK has the capacity to provide comprehensive training in this area, focusing specifically on the correct mounting and dismounting of your bearings.

Improvement pays resulting in substantial savings

Among the many plants and facilities benefiting from AIP in the UK, is a renowned electricity producer that was experiencing frequent and inconvenient breakdowns due to bearings failures in two industrial fan units. The bearings were, on average, failing every three months, a situation that was taking three engineers, 10 hours to remedy, each time, incurring extremely high costs per breakdown situation.

Following an application review [see box-out], high-capacity spherical roller bearings with SNN plummer block were recommended, in addition to correcting the fixing arrangement.

A trial of the spherical roller bearing units was conducted, with NSK's engineering team overseeing the installation and implementation of the recommendations. The result was zero bearing failures over a 12-month period. Furthermore, the solution offered increased productivity with reduced maintenance and downtime costs, and four

times greater bearing lifecycle..

As can be seen in this particular example, operating with the wrong bearings or fitting them incorrectly can significantly reduce the output of machines, and even cause a whole plant to grind to a halt, incurring unimaginable costs. Here, the change of bearing and fixing arrangement led to the delivery of €134,040 in annual cost savings.

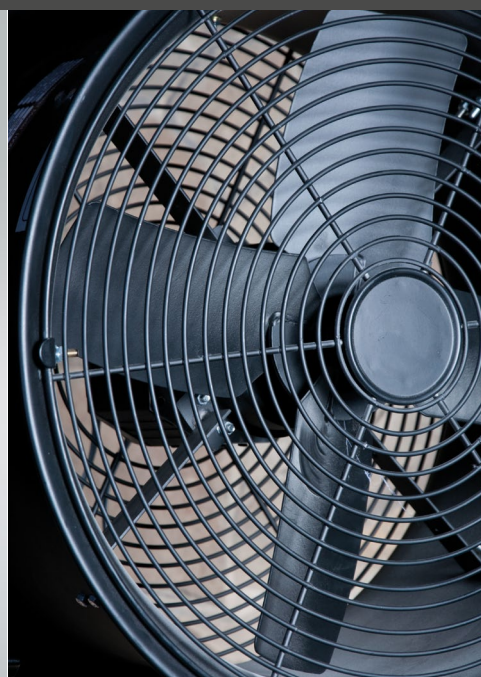
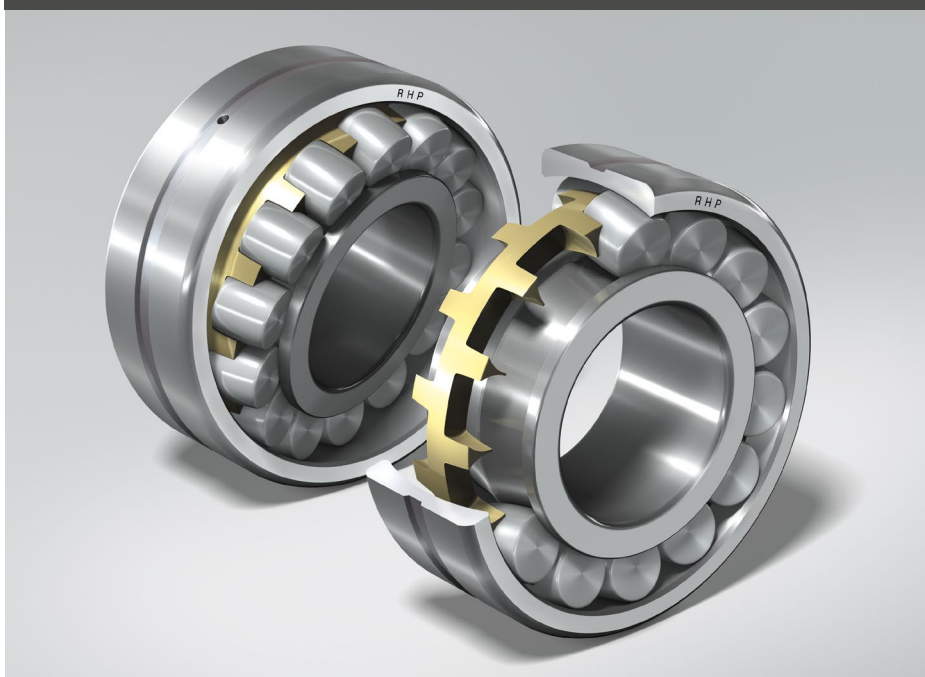
“ Led to the delivery of €134,040 in annual cost savings ”

In essence, NSK's AIP makes operation and maintenance processes more reliable, efficient, and profitable by saving money at each value-added step. AIP also solidifies the relationship between OEM, distributor, and end user, helping successful businesses grow to a larger scale. Based on product quality and reliable customer support that helps nurture deeper understanding, NSK builds stable and strong long-term partnerships that deliver a more rewarding future for everyone.

Application review

NSK's comprehensive application review at the energy plant included a failed bearing examination from the drive and non-drive end bearings. Observations included:

- Fretting corrosion on the external diameter of the outer ring.
- A wider and more pronounced running band, indicating that the raceway of both bearings had supported an axial load. This is unusual as the fan configuration had a fixed and free-end arrangement – to allow for shaft expansion from operating temperatures – thus the free end should only support a radial load.
- As the free-end bearing exhibited axial loading, NSK could attribute the root cause of the failures to incorrect bearing arrangement.



8 out of 10 bearings can't be wrong



Shaun Heys
Marketing Communications Manager

ROCOL

Most industry experts agree: 8 out of 10 bearing failures are not the result of bearing faults. They're caused by poor lubrication management and contamination issues. Or to put it another way: it's not the bearings that are wrong, but how they are maintained. An effective, regular maintenance routine using carefully selected high-quality grease is the solution to reduce bearing failure, increase bearing life, and minimise costly downtime.

Unlubricated bearings will commonly overheat as a result of friction, wear excessively, and corrode. And when those things happen, at best you can expect less efficiency and poorer performance. At worst, machinery could seize, or bearings could fail prematurely, with all the associated effects and costs of downtime, lost production and bearing and shaft replacement.

So how does a bearing grease help, and which one should you choose for your lubrication regime?

The power behind the oil

Strictly speaking, it's not the grease which does the important job of keeping bearings lubricated. It's the oil within the grease. But that oil is a more effective lubricant because of the way grease helps it to work.

While oil flows, grease clings. So, when it's placed on a bearing it stays in place for longer, allowing the oil it contains to lubricate for longer in the right place. Grease is also easier to apply than oil, and as well as being a lubricant 'carrier', it can act as a seal protecting the bearing against ingress of contaminants.

Putting all these properties together means the right grease in the right place at the right time can help to increase bearing life, prevent premature bearing failure,

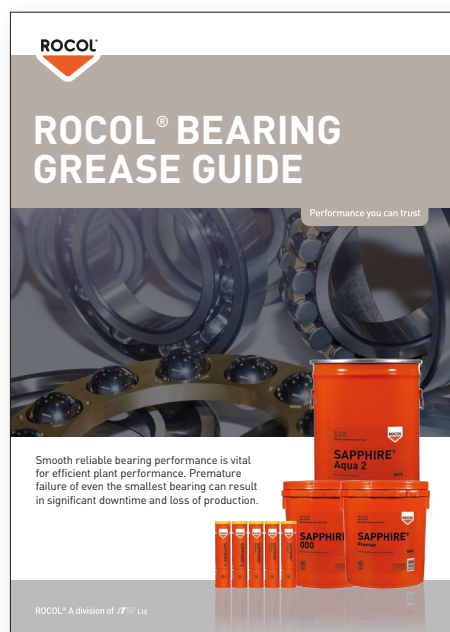
“ Oil flows, grease clings ”

extend relubrication intervals and reduce downtime. Which means less lubricant is required, maintenance costs are reduced, costly unplanned downtime is avoided, and productivity is increased.

“ Right grease, right place, right time ”

How to choose your grease

There are almost as many bearing greases as there are bearings. Choosing the correct grease for your application and operating conditions will make all the difference to bearing wear, operation, and bearing life.



The first consideration is the operating conditions. Is the bearing operating:

- in a food/clean environment
- under extremes of temperature or condition
- at high speed (faster than 3,000rpm)
- in wet or humid conditions
- under high load?

Next, what type of bearing is being lubricated? There are basically two categories: plain (such as phosphor bronze bushes) or ball, roller, needle and so on.

Lastly, what is the bearing operating temperature range: low, medium or high? (The parameters will vary depending on whether the bearing is operating in a normal, food or wet environment.)

There are greases in the Rocol® Sapphire® family to match all these variables. And all the greases in the range typically last three times longer than conventional grease. That means longer periods between relubrication, lower grease consumption, and lower lubricant costs.

“ Last three times longer than conventional grease ”

ROCOL Sapphire bearing greases are also noted for their outstanding performance under extreme pressure, compared with conventional lubricants. This means bearings last longer, need fewer unplanned repairs, and break down less often.

Lastly, Rocol Sapphire greases are highly resistant to oxidation. This helps to extend relubrication intervals, which in turn means less grease is required overall, and lubricant costs are reduced.

You can find full details to help you choose your Rocol Sapphire grease in the Rocol Bearing Grease Guide. Or speak to your usual ERIKS representative for expert lubrication advice that gets 10 out of 10 every time.

Frying tonight – and the next 63 nights

A large fryer at a major food manufacturer's site contains 15 bearings. These were failing after three weeks, at a replacement cost and labour time of £82.56 and two hours each. The total annual cost of bearing replacement was £63,158.40

- Rocol recommended SAPHIRE Endure grease, which is ideal for aggressive environments subjected to extreme heat. The high-performance characteristics of the grease also enabled the customer to change to less costly bearings.
- The combination of SAPHIRE Endure and more cost-effective bearings means each bearing now lasts for a minimum of nine weeks, with a replacement cost of just £16.12 each – saving £66.44 per bearing. Labour hours have also been reduced, from 34 to 12 hours per year. Total bearing cost savings are estimated at approximately £20,367 per year.



Engineering the perfect drive solution



Henning von de Haar
Key Account Manager Power transmission



Common sense will tell you that ‘the perfect drive solution’ can really save you money, and with more than 120 years of expertise in the field of drive belts, there’s no one better to assist their customers than Continental. From development of tailor-made solutions, to design and maintenance services, Conti are the complete package.

2021 sees technology company, Continental, celebrate its 150th anniversary, a long-standing history that has seen them have a decisive influence on drive belts, resulting in true technological progress – beginning with the simple V-belt in 1889.

Since then, Continental has been continuously developing its sophisticated range of belts in co-operation with its customers, today, producing solutions that provide drive systems for almost every industry. This means, that they can offer their entire range from a single source. That’s more than 20,000 different dimensions and designs – from classic V-belts to banded V-belts, variable speed belts, poly V-belts, flat belts, innovative timing belts made of rubber or polyurethane.

Continental’s vast experience is reflected not only in material expertise and sophisticated design, but also in outstanding service. In partnership with its customers, Continental has the capabilities to find the right belt solution for the specific application, develop tailor-made solutions for individual requirements, and provide technical support onsite.

And, as a development and service partner for OEMs and their equipment, as well as a hand in the replacement business, their focus remains on Total Cost of Ownership.

Monitoring your total costs

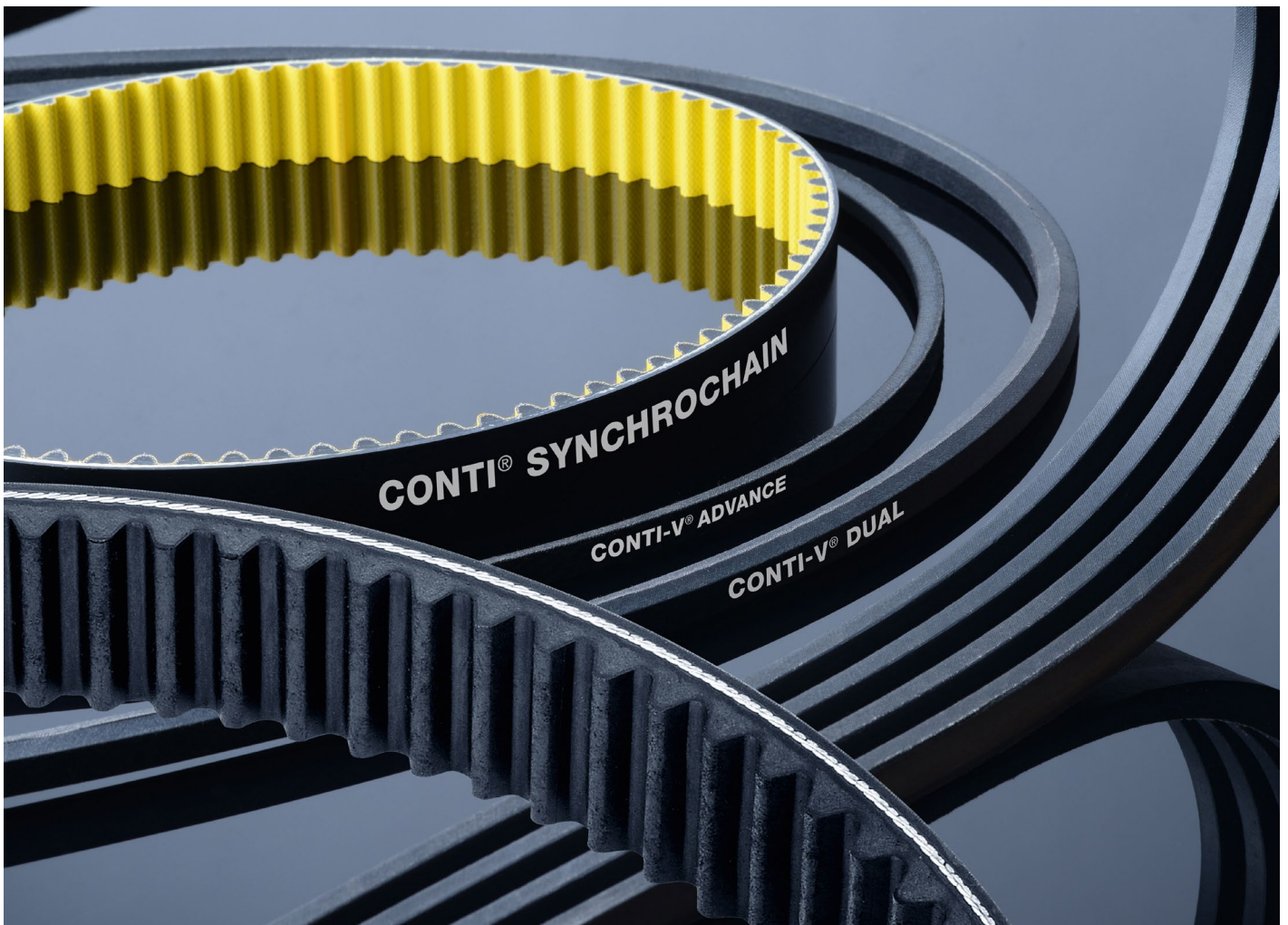
There’s one thing to always bear in mind. It’s worth looking at the performance of your belts, not just the price. It’s not just the longer

service of higher quality solutions that pays off.

Using high-performance belts can significantly reduce the system’s overall width. The multiple advantages are as clear as day. So, as a result, the drive is lighter, quieter, less expensive, and more efficient in all areas. This, of course, saves you money.

Opt for carbon for longer service life

The Conti Synchocarbon timing belt is an excellent example of a heavy-duty belt. The carbon structure for the tensile member makes possible higher power transmission, longer running times, and 50 percent less elongation than an aramid tension member. This means that it’s extremely wear- and abrasion-resistant, and maintenance-free.



In fact, the service life is up to 100 percent longer compared to other heavy-duty timing belts available on the market.

The cord fabric's high rigidity also prevents unwanted pre-tensioning losses over the entire service life, increasing the efficiency of the drive and reducing operating costs.

Thanks to its extraordinary power-to-size ratio, drives can also be built up to 80 percent narrower with the Conti Synchrochain Carbon, meaning that your Total Cost of Ownership always sits on the positive side.

Narrow section equals compact drive

The use of narrow section V-belts offers economical advantages compared with conventional V-belts. When designing a belt drive, multiple belt types are often possible, therefore selecting the right V-belt is crucial if you are looking to achieve optimum power transmission, service life, and reduced maintenance costs.

In an attempt to achieve the above, the use of raw-edge narrow V-belts, such as the Conti-V FO Pioneer, should always be considered first.

In short, these belts have the highest power transmission, the best efficiency, and the longest service life. They can be used with smaller pulley diameters, high belt speeds,

and high transmission, and can accordingly be designed more compact and with lower overall costs.

Correct mounting and maintenance essential

We all know that drive belts are a reliable and powerful means of power transmission. But that's because they are so undemanding that they are often neglected and don't even get the little attention they require.

“ Three quarters of belts fail due to incorrect mounting, maintenance and design ”

But the failure statistics speak for themselves: Incorrect maintenance, defective mounting and incorrect design are behind three-quarters of belt failures. To counteract this damning statistic, correct mounting and maintenance of your belt drives should be a prerequisite if you strive for trouble-free and long-standing functions.

With the capacity to provide expert advice, training and learning platforms, Continental

service tools prevent failures. These devices are ready for immediate use and assist you in reducing maintenance work to a minimum.

The 'right' tool

Even the best belt is only as good as the conditions it's set in. Incorrectly installed belts run rougher, causing vibrations in the machine, and are generally much louder, therefore correct belt tensioning and alignment of belt pulleys is essential. In short, paying close attention to these two parameters will mean that early and cost-intensive failures can be avoided.

Optical and acoustic maintenance is the first and most simple step, with tools from Continental further assisting in correcting the errors during the next steps. For example, the VSM Mini Tension Gauge helps to set the correct installation tension, courtesy of the acceleration sensor that operates perfectly even in loud environments, while its compact design allows it to slip easily into any toolbox.

When it comes to alignment, the Conti Laser Aligner is suitable for controlling and aligning belt pulleys. This intuitive and highly accurate tool makes it possible to achieve maximum service life, for all types of belts, and is ready for immediate use. In addition, customers can also introduce Conti Professional Calculation Software, enabling customers to calculate their own belt drives.

Spin riveting for maximum conveyor chain plate security



Alec Annand
UK Chain Centre Operations Manager
RENOLD

Although most conveyor chains these days are wedge riveted as standard, the option to specify spin riveting is an important one and should be considered for critical applications both by designers of original equipment and maintenance engineers alike.

It's an important consideration and an effective solution on applications where attachments have been fitted to the side plates of conveyor chain that could be carrying heavy loads. In fact, Alec Annand, the manager of Renold Chain's Customer Service Centre, recommends that all engineers specifying custom designed conveyor chain, with attachments, should consider the benefits of spin riveting as an option, due to the extra side plate security it provides.

The recommendation comes after one manufacturer using a large amount of conveyor chain, at one of its plants, sent an inspection team to Renold Chain's Bredbury Service Centre, which also produces both transmission and conveyor chain to exact specifications to a wide range of industries including OEMs, theme parks, packaging, printing and food, to check on the quality of its spin riveting process.

Conveyor chain operated by the manufacturer was fitted with attachments that had to carry very heavy loads through

underground chambers that were inherently dirty and foul smelling. The load on the chain side plates was causing them to work loose over time and eventually they would come off. An engineer would then have to descend into these dark, unpleasant chambers to carry out repairs.

The maintenance team at the manufacturer took the decision to specify replacement conveyor chain with spin riveted side plates as a solution. Not only would this virtually eliminate the need for engineers to enter the unpleasant environment to carry out repairs, but the spin riveted chain would also cut maintenance and increase productivity.

Cheaper alternative

Wedge riveting is cheaper and quicker than spin riveting, which is why most conveyor chain manufacturers have adopted this process as standard. It's fine on most applications, especially where the side plates are not fitted with load carrying attachments, but spin riveted conveyor chain provides enhanced side plate security, and as Annand

recommends, it should be considered for all critical applications.

During the spin riveting process, at Renold's customer Service Centre, the pins are end softened to prevent cracking during riveting, and to provide easier onsite installation, riveting and dismantling for customers.

The spin rivet itself has a mushroom-like head and provides much greater surface area contact with the side plate. It is this feature that provides the required enhanced security of the chain's side plates.



Renold chain **ticks** all the boxes



RENOLD
Synergy

RENOLD
Syno

RENOLD

RENOLD A&S

RENOLD SD

From glass manufacturing to timber processing, warehousing to food production. Whatever your industry and application. Our chain delivers increased performance and productivity.

For your Renold solution, please contact us on
0161 498 4600 or email info.uk@renold.com

RENOLD

www.renold.com

Need a fast, cost-effective belt repair? Brace yourself.



Tom Pettigrew
Company Director & Head of Technical Sales



A belt that holds up your trousers or skirt is a good thing. A belt that holds up production isn't. Conveyor belt problems are common but – thanks to a unique rubber repair solution – lengthy downtime, lost productivity and expensive emergency belt replacements can be avoided.



The list of things that can go wrong with a conveyor belt is almost as long as some conveyor belts themselves. From excessive wear damage at the edge of the belt, to hardened and cracked belts and cracked belt covers.

From longitudinal grooving of the bottom cover, to holes and cracks at the idler junction point. And from separation or delamination of the vulcanised joint, to belt breaks by the fasteners, or fasteners that tear loose or split.

Worst of all, when something does go wrong it means unscheduled downtime, often with the cost of a new belt to add to the cost of

lost production. Or at least, it did.

Not any longer. Now there's an alternative solution which not only makes it quicker to carry out emergency repairs, but also means you can easily make conveyor belt maintenance part of your regular maintenance routine.

“ Part of your regular maintenance ”

Brush, toothpaste, smile

Combining polyurethane resins, a base and an activator, an elastomeric paste from Unique Polymer Systems is as easy to apply as toothpaste.

So you can quickly repair worn or damaged conveyor belts and other flexible components.

“ Quickly repair worn or damaged belts ”

First, the area to be treated should be cleaned with a mechanical wire brush – taking care not to melt the rubber or cause more damage to the belt. This ensures improved adherence of the rubber repair paste. Dust should also be cleaned from the area.

Solvent-free and non-polluting, the paste is supplied with the precise ratio of hardener to base, together with mixing tools and application equipment. The easy-to-use packaging allows the exact amount of product to be prepared for each stage of the repair.

So no product cures and is wasted while the belt is being cleaned and prepared. The product is also available as a fluid, which may be more suitable for some areas to be repaired.

The paste has the same viscosity as toothpaste, making it easy to apply on sloping or vertical surfaces – and even upside down – with no risk of runs. It also maintains the shape it's given during the application, and is resistant to impact, abrasion, and chemicals. Excellent elongation of up to 190% means that even when the belt wraps around the pulley, the repair won't pop out or be forced off.

While a conveyor belt replacement can often mean days of downtime, the Unique Polymer Systems Complete Rapid Conveyor Belt Repair System takes as little as 30 minutes to dry and only an hour before the belt can be ready to start up once again.

With a rapid repair system that's so easy to use, there's no need to wait for a belt to fail before it's repaired or replaced. Now all your conveyor belts can be maintained in optimum condition during scheduled downtime, to make sure production keeps rolling.

“ Production keeps rolling ”

Rock and rolling

CASE STUDY

Just two days after installation, a belt conveying large aggregate was damaged when materials became jammed between the skirt and belt. A 14cm gouge along 140m of the belt's length caused damage to a depth ranging from 1.5 - 6mm. The first two layers of fabric carcass were worn through, exposing the third layer to further wear.

After cleaning with a wire brush attached to an industrial grinding machine, a solvent was used to clean dust from the area before application of the Unique Polymer Systems Complete Rapid Conveyor Belt Repair System paste.

With pre-measured quantities for mixing, and no expansion or contraction after application, applying the correct amount was simple. No specialist contractors were required, and two of the customer's own maintenance engineers carried out the repair: one applying and the other spreading the paste.

The UPS 360 RRP paste used for the repair took only two hours to cure for every 2mm depth. Measured on the Shore Scale it cures to a hardness of 60-65, depending on the ambient temperature.



Take a deep breath before you go back to the office



Marcel Schoch
Digital Services Manager, CTO qlair
MANN + HUMMEL

If you haven't yet gone back to your workplace, or ventured into a shopping centre, you'll be taking safe, breathable, COVID-19-free air for granted. But sooner or later we're going to want our offices, factory floors, supermarkets and shops to feel as safe as our homes. How can we be sure they are?

Until last year, most people never thought about the air they breathed. 'Aerosols' were something with deodorant in them. 'Airborne transmission' meant little or nothing. Now air quality is not just an abstract concept, but could be a matter of life or death.

So when you're dealing with something you can't see, how can you ensure that the indoor environment is as safe as possible? And how can you keep it safe, but also comfortable and energy-efficient all at the same time?

“ Safe, comfortable and energy-efficient ”

The first step is to make the invisible visible, by monitoring air quality, you can use the collated data to interpret safety of the environment. Then you can make data driven decision, act on the results to make the air fit to breathe and contribute in energy

“ Make the air fit to breathe ”

A smart Indoor Air Quality (IAQ) management platform makes it easy.

What's the risk?

What's in the air we're breathing is a strong indicator of the risk of Covid-19 airborne infection. For example:

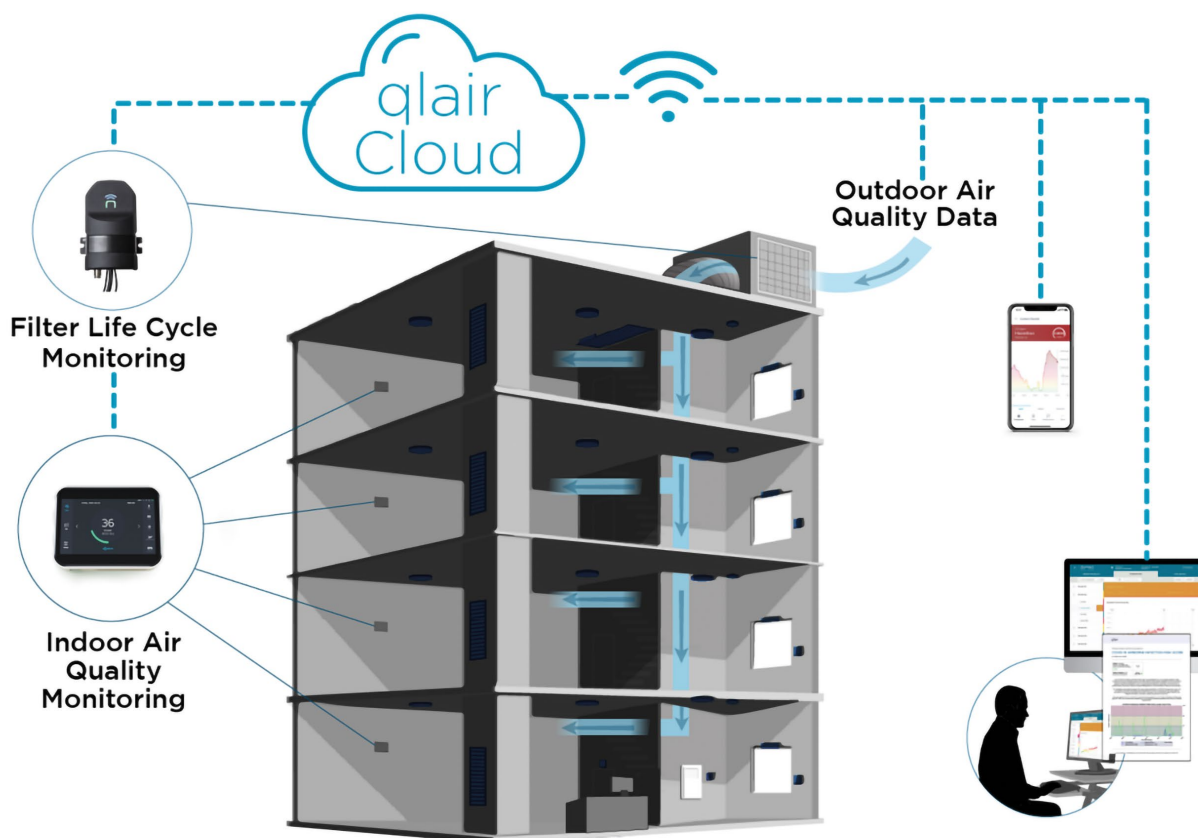
CO₂ When carbon dioxide levels are high, it indicates that your space is not properly ventilated. More importantly, CO₂ levels directly correlate with potential virus concentration in the air if an infected person is in the room. Research shows that infection risk indoors is significantly higher when not properly ventilated. According to the HSE, CO₂ levels should be kept at 800ppm or below.

In environments with less than 40% Relative Humidity (RH), virus containing droplets lose their moisture quickly. Droplets become

dry aerosols, capable of staying in the air for longer periods. Corona viruses remain infectious much longer below 40% and above 80% relative humidity. [Source: ASM Journals, Effects of Air Temperature and Relative Humidity on Coronavirus Survival on Surfaces]

PM_{2.5} Particulate Matter pollution at 2.5 microns (PM_{2.5}) in size or smaller can penetrate our lungs deeply and put additional stress and potentially inflammations on our respiratory system which makes us more vulnerable to airborne infections. The Delta between indoor and outdoor PM_{2.5} levels indicate the effectiveness of HVAC air filters, and particulate matter is a suspected to work as carrier for viruses making the virus particles 'linger' in the air for a longer time. Experts recommend to keep PM_{2.5} levels below 10ug/m³. [Source: Harvard University Fine particulate matter and COVID-19 mortality]

Qlair uses these risk factors and thresholds to calculate an easy to understand index score that helps to optimise your building for the



CASE STUDY

£5k saving on running (and jumping, and throwing) costs

A university in the USA wanted to improve the operation and efficiency of the HVAC system in its athletic facility.

qlair installed monitors to gather continuous, real-time air quality data, and to track critical air pollutants such as PM, CO₂ and TVOCs. Investigation also revealed that there was no consistent schedule for managing ventilation, and filters were changed without any reference to performance data.

After careful assessment of air quality data and the facility's systems, qlair made a number of changes. These included establishing a ventilation schedule, basing the Air Handling Unit operating schedule on real-time CO₂ levels, selecting filters to reduce PM concentration, and using bipolar ionisation to lower TVOC levels.

Benefits include:

- fewer HVAC system operating hours per day
- longer air filter life
- improved occupant comfort
- a reduction in energy costs of over \$7,000 (approx. £5,000).

highest occupant safety and communication by accessible data dashboard. The air quality management solution from qlair not only tracks all these pollutants, but also provides access to data and recommendations at any time, anywhere.

Information vs. Knowledge

It is possible to know too much – particularly where air quality is concerned.

As a facility manager, depending on the size of your premises, you could have as many as 200 sensors installed, each providing real-time data from five different parameters. It's a comprehensive picture of air quality – but so comprehensive you'll probably find it difficult to interpret.

Fortunately, qlair has the solution.

A custom web platform with reporting will display the most important data and derive the most cost efficient clean air strategies. Alerts will notify you when indoor air quality reaches critical thresholds, and will identify the steps to take to resolve the issue. You can also be alerted if there's a fault with your HVAC system and when it's time to replace filters. You can analyse air quality to optimize energy-efficiency, heating, ventilation and occupier comfort. And you can use the data to reduce the Total Cost of Ownership of your HVAC system.

You can also do all this across multiple accounts, buildings and HVAC units, from just one portal.

All-around air



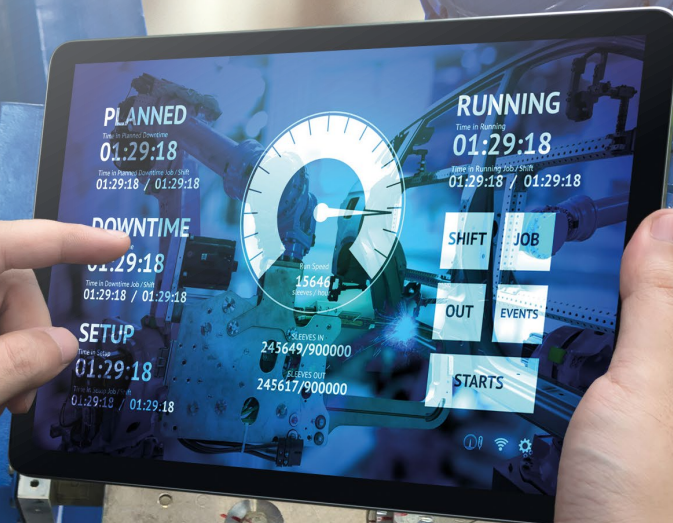
Whether you are focusing on Sustainability or healthy buildings or both, qlair takes a holistic approach to air quality issues. So if you need a comprehensive assessment of air quality to establish a baseline for improvement, a qlair survey will assess both outdoor and indoor air, and identify sources of pollutants.

Whether you want data you can act on from qlair monitors, more cost-effective management of filter lifecycles in your HVAC system, or want to integrate and interpret existing data from your building management systems, qlair can help.

In fact, if you want to create buildings that are not just healthier, but also more efficient and cost-effective, then qlair is a breath of fresh air.

“ Reduce the Total Cost of Ownership ”

Helping to drive automotive reliability



Ian Hodkinson
Technical Sales Office Manager



Working to provide tools that exactly fit your customer's needs has always been the driving motivation of Piab's research and development ethos, and their latest offerings to the automotive industry, where assembly speed and safety are first priorities in order to maximise throughput and minimise downtime, are no exception.

A new series of automotive suction cups from Piab addressed the issues of handling oily metal sheets which often also have narrow gripping areas, ensuring that these sheets can be moved securely and efficiently within body shops and parts assembly areas, as well as low and medium speed press lines.

This new line is designed with friction cleats that provide good stability and resistance to horizontal forces during operation, especially where oil is present, as the cups also offer industry standard dimensions and interfaces and can easily be integrated into existing production lines.

Available in round/oval flat, round/long/oval bellow variations, there is a cup suitable for the majority of sheet handling applications and are also a good alternative for applications outside the automotive industry such as wood, metal sheet handling, aerospace, and white goods.

Made from 60 shore (A) silicone-free nitrile-PCV, which creates a durable and cost-effective cup, all the suction cups from the series have a moulded aluminium insert with nine fitting options, including a quick-connect fitting system (T-slot) or can be easily adapted for your own fitting solution.

“ Maximise throughput and minimise downtime ”

With a wide cup lip for better sealing over dust and debris, all the cups are designed to operate even at low vacuum levels, resulting in less energy consumption and faster production lines.

Unique Fail-Safe vacuum unit

Where it is imperative that valuable metal sheets are held and moved securely, in keeping with production schedules, Piab has developed their piSAFE® program which, in combination with market leading vacuum performance through their patented COAX® technology, is the perfect choice for challenging robotic applications and ergonomic handling devices where safety is a key concern.

“ Designed with outstanding safety and energy savings ”

Designed with outstanding safety and energy saving features, the products in Piab's piSAFE® program have been specifically developed to provide configurable and low weight solutions that can be adapted to your needs.

Whether you want a centralized or decentralized vacuum gripping system, interfaces that match common (industrial standard) EOAT systems, or stand-alone mounting, the piSAFE® program provides a high vacuum safety and high performing configuration.

piSAFE® program key benefits include:

- Vacuum safety non-return valve (check valve) which holds vacuum in sealed applications in case of system or power failure
- Can replace more expensive mechanical or vacuum-tank safety arrangements in robotic tools and ergonomic equipment
- Suitable for ergonomic lifting devices/manipulators and cranes which must comply with lifting norms such as (DIN/SS) – EN 13155 and ASME Standard B30.20
- Through the energy saving features, the noise level is reduced as well as the carbon footprint. The air consumption is reduced by up to 98% per cycle
- Light-weight materials lower the weight on EOAT and ensure less wear on robotic motors and drives with possibility for increased speed/acceleration or a smaller, cheaper robot

piSAFE® program key feature:

- Configurable with vacuum ejector based on COAX® technology with integrated control functions for energy-saving and release
- Vacuum sealing port included for easy installation of good-to-go switch
- Configurable with different types of release functions supporting maximum release speed and air-consumption free release
- The modular design facilitates opportunities for easy maintenance, quick connect options and fit for application configurations



Prepare for your lightbulb moment



Tom Morgan
Product Manager, Industrial Electrical
ERIKS

It happened this September. It's going to affect you at work and at home. And there's a good chance you haven't heard anything about it. But the sale of halogen lightbulbs (or halogen 'lamps' as they're called in the industry) have been banned in the UK since September this year. Do you know what happens next?

“Banned in the UK”

It was only in June this year that the Government announced plans to end the sale of halogen lamps from September. It was short notice, but it's for the ultimate benefit of all of us. That's because the LED lights which will take their place use less energy, produce fewer carbon emissions, and help to save money.

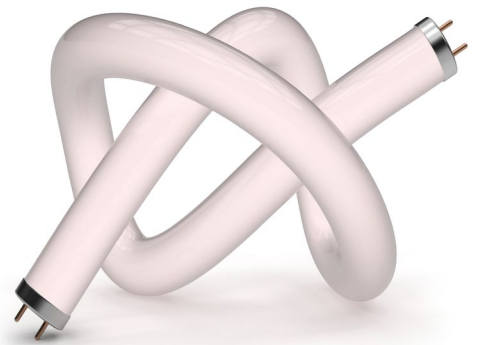
LEDs might look like a bad deal compared with halogen equivalents because they cost slightly more but they not only last five times longer than halogens, they also use

up to 80% less power. They also offer major environmental benefits.

“Use up to 80% less power”

We are all aware of the need to reduce our carbon footprint for the sake of limiting climate change. According to the Government's Business Department, banning halogen lamps will reduce carbon emissions by 1.26 million tonnes annually. That's the equivalent of taking more than half a million cars off the UK's roads. Together with other energy efficiency improvements for electrical appliances – announced in the

same package of measures – emissions will be reduced every year by the equivalent of the year's combined carbon emissions of Birmingham and Leeds.





The same package of improvements will also save consumers an average of £75 a year off their energy bills – more than making up for a little extra on the price tag of an LED lamp.

Left in the dark

The EU actually stopped producing and importing halogen lamps three years ago. Nine years before that, traditional incandescent lamps were banned. Even though the UK is no longer in the EU, we are still following the bloc's latest directive concerning the types of lamps manufactured and sold. As the new rules came into effect in September, it's only recently that the media have been making people aware.

Currently LEDs make up around two-thirds of lamp sales in the UK, but this is expected to rise to 85% by 2030. If you have spotlights in your home (in the kitchen, for example) or garden lights, these are almost certain to be halogen lamps and will have to be replaced with LEDs when the lamp finally fails.

Plans are also in hand to phase out high-energy T8 fluorescent lamps, and to end their sale completely by September 2023.

Lighting fittings with fixed lamps that can't be replaced are also banned from September this year. Because the complete fitting has

to be thrown away when a lamp fails, they account for 100,000 tonnes of electrical waste every year.

The Government is doing even more to throw light on the situation and make it easier to choose the most energy-efficient lighting.

The existing A+, A++ and A+++ energy-efficiency rating displayed on lamp packaging is being changed to a simpler A-G scale. At the same time, the energy efficiency requirement at each level is being raised, which means fewer lamps will achieve the top 'A' rating.

Shining a light

Whether you're buying new LED lamps for home or workplace, your best option is to choose a reputable manufacturer or supplier.

For the workplace, ERIKS even offer a lighting survey to help you identify the most energy- and cost-efficient lighting options and systems, whether it's for factory floors and warehouses, or offices and storerooms. Solutions such as PIR motion sensors – to automatically turn off lights when no personnel are present – can dramatically reduce your energy wastage, energy costs, and carbon footprints.

“Energy- and cost-efficient lighting options”

ERIKS can also illuminate you about next-generation lighting concepts, such as circadian lighting. By varying the intensity, colour or wavelengths of light according to the time of day, this can boost health, alertness and productivity. We'll be shining a light on the science and technology behind it in a later issue of Know+How.



Ansell

reduce injuries by **65%**

25% complexity reduction

projected savings on PPE

\$ 170m



SAFETY.
tailor-made

AnsellGUARDIAN® is our unique, tailor-made assessment service carried out by our safety experts to improve the safety, productivity and cost performance of your company.

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Ansell**GUARDIAN**®
Global Safety Services

Are you up to the mark?



Paul Skade
Category Manager, Industrial MRO and Safety
ERIKS



Many products have a 'CE' mark to indicate that they are safe and fit for purpose. But now the UK has left the EU, the CE mark won't apply. So if a product that once had a CE mark no longer has one, how can you find out whether you're buying reputable equipment for your business, or putting safety or productivity at risk?

For many types of product, from PPE to machinery, you'll find the CE mark on the product itself, on packaging, or on accompanying paperwork. It's reassurance that the product has been tested to specified standards.

“ Tested to specified standards ”

If a particular product comes under the CE mark regulation, then reputable distributors such as ERIKS will aim to supply only those makes and models which are CE-marked.

However, there's now a new mark to look out for.

The UKCA [UK Conformity Assessed] mark replaces the CE mark for goods sold in England, Wales and Scotland. To be sold in Northern Ireland, goods manufactured in the UK which previously had a CE mark must now have both a UKCA mark and CE mark, or a UKNI mark instead.

UKCA marking came into effect on 1st January this year, but there is a transitional period until 31st December 2022. Until then, in most cases, the CE mark can still be used. All three marks mean basically the same thing: the product

has been assessed and approved as meeting the necessary technical requirements and standards.

“ Simple guidelines to follow ”

This is complicated for manufacturers but much simpler for purchasers. In fact it boils down to a few simple guidelines:

In England, Scotland and Wales

1. On products where it is applicable, check for the CE mark. Until 31st December 2022, these products can be supplied from old stock with a CE mark only.
2. If a CE mark is applicable to a product and it doesn't have one, then it may be new to the market. However, it should have a UKCA mark instead.
3. If a CE mark is applicable, and the product has neither a CE mark nor a UKCA mark, it does not conform to the required standards.

In Northern Ireland

1. The CE mark will continue to be used on products where it is applicable, but alongside a UKCA mark after 31st December 2022.

2. If there is no CE mark on a product to which it is applicable, there should be a UKNI mark.
3. After 31st December 2022, a CE mark on its own, or no CE or UKNI mark on an applicable product, means the product does not confirm to the required standards.

Alternatively, there's an even simpler way to be sure you are buying items which meet the standards for quality and safety: always buy from a reputable supplier. Suppliers like ERIKS will be taking all possible steps to ensure their own supply partners meet the new conformity assessment and marking requirements.

“ Buy from a reputable supplier ”

So on packaging and paperwork, for peace of mind always remember to look for the ERIKS logo too.



The world's first curved auto-darkening filter



Ged Leonard
Welding Sales Specialist
3M

Understanding the value of precision, visibility, and comfort is one thing. Delivering all three in one convenient package is another. But now, thanks to 3M's unrivalled innovation, you can concentrate on the precision of your welding, rather than the standard of your equipment.

TIG welding is a common practice in many industrial environments, and as a TIG welder, precision, visibility, and comfort are essential



in performing your duties effectively, efficiently, and most importantly, safely.

A dangerous task with risk of severe injury, historically, TIG welders would have had to compromise, opting for either a slim helmet or a wide view. Compromises now no longer need to be made. Introducing the 3M™ Speedglas™ Welding Helmet G5-02, setting new world standards for precision welding filter viewing.

Unleashing new welding performance

The latest, high-end, inverter based TIG machines offers incredibly stable arcs. So, utilising 3M's most advanced electronics and four arc sensors, the G5-02 welding filter has the capability to reliably switch even at very low amperages, for example, for example 1 amp, TIG settings, meeting the new pr ISO 16321 "TIG+" standards.

Innovatively manufactured to be as light as possible, complete with an extremely thin, curved filter glass pack, users will notice that the centre of gravity is closer to the centre of the forehead providing better weight distribution, leading to improved comfort.

In addition to the slimline silhouette, 3M have listened to feedback from a selection of highly skilled welding professionals, who know their craft and are passionate about doing a good job, following tests and created a new exhaled air venting system to significantly reduce heat and humidity.

“ Significantly reduces heat and humidity ”



Why curved?

It doesn't take a rocket scientist to realise that the wider a flat filter gets, the wider the helmet must become in order to accommodate its dimensions. 3M's latest solution utilises curved glass to allow for a slimmer profile. In fact, the combination of the curved welding filter and a slimmer helmet can reduce reflections and other distracting glare inside the helmet, greatly improving visibility [150mm field of view], safety, and efficiency.

But wait! Surely curved glass is more fragile than flat glass, right? Well, the glass used in 3M's G5-02 filter is actually extremely flexible. Certified using the same, standardised impact resistance testing procedures used for traditionally flat welding filters, both the filter and protection plate meet EN 166:F and EN 175:F, providing resistance to high speed particles at up to 45m/s.

“Curved glass to allow for a slimmer profile”

More importantly, users are benefiting from 3M's best optics to date, due to the 'glass pack' that's 1/3 as thick as their thinnest welding filter. Stefan Henriksson,

3M Welding Eye and Face Product Manager commented: “We've challenged ourselves to find an appropriate solution for a curved filter. We tested – and rejected – curved filters made with plastic substrates. We have found a plastic has low heat resistance and is permeable, absorbing contaminants that reduce filter visibility and longevity.

“Of all the materials we tested, we could not find anything that out performs glass.”

“Colours now appear brighter and more realistic”

Natural colour technology

Providing the best-in-class in terms of clarity, thanks to the new 2.5 light state (before weld) and SpeedGlas Natural Colour Technology (during the weld), colours now appear brighter and more realistic in both the light and dark states. This means that better control over your arc can be achieved courtesy of a more realistic view.

Designed to be more intuitive, the G5-02 features a strategically placed control panel, with controls located on both sides of the viewing area, meaning that the

most frequently used controls (SHADE and SENSITIVITY) are in the most accessible areas – the lower left and right corners.

Complement your welding experience

The different environments, risks, and hazards presented in day-to-day operations mean that no two workplaces are the same. And 3M fully understand the scope and variety of industry, and that's exactly why they offer a range of innovative Personal Protection Equipment specifically designed to enhance your experience and, ultimately, keep you safe from harm.

From respiratory protection to eyewear and hearing aids, 3M solutions are specifically designed to work in unison with each other, allowing you to select the level and type of protection, comfort, style, and maintenance requirements you need to work safely, comfortably, and effectively in any given environment.

Get Connected

You can now seamlessly and securely pair your smartphone device with your G5-02 welding filter via the 3M Connected Equipment App.

This innovative and exciting app can program up to 10 memory modes (settings for dark shades, sensitivity, delay etc.); easily record your welding helmet maintenance log; and have instant access to usage statistics, user manuals and parts lists.

Bearings grease: know your rights



Rüdiger Schiffer
Customer & Technical Service Member
OKS

If you want to improve the performance and reliability of your assets, while reducing maintenance and lowering energy costs, you need to know your rights. Right lubricant, right place, right amount and right time. Get all of these right for each of your bearings, and you'll soon see the benefits.

It's not unusual for a customer to ask for bearing grease. Just that. What they're forgetting is that, although there are not quite as many different greases as there are bearing applications, a speciality lubricants manufacturer like OKS can still offer as many as 50-60 different formulations to choose from.

“ 50-60 grease formulations to choose from ”

And since the grease can make all the difference to asset performance, service life and Total Cost of Ownership, it's essential to make the right choice. So here are the six key parameters to guide you to the grease you need.

1. Operating temperature

Greases can be affected by both high and low temperatures. A low temperature can make a grease highly viscous and unable to flow sufficiently. A high temperature can make the grease too liquid, so it fails to provide sufficient protection against friction.

Technical information for most greases does include a temperature figure. However this

is usually the peak temperature at which the grease can operate – perhaps for only a few minutes. To choose an effective grease, you need to know it will work for its entire life at the service [usual operating] temperature of your bearing. The tech spec for all OKS greases includes this essential information.

2. Bearing type

Different bearings place different stresses on a lubricant. So a grease suitable for a radial ball bearing may not be the best choice for a cylindrical roller bearing, or a thrust and roller bearing. A cylindrical roller bearing, for example, creates higher mechanical stresses to the structure of the grease than other types of bearing.

3. Running speed

A bearing's running speed (RPM) is a major influence on the choice of grease. Taking the running speed, the bearing type and the middle bearing diameter together, an expert lubrication adviser can calculate the DN Value, which – used together with a grease selection chart specification – enables identification of a grease with correct viscosity for the application.

“ Correct viscosity for the application ”

4. Load

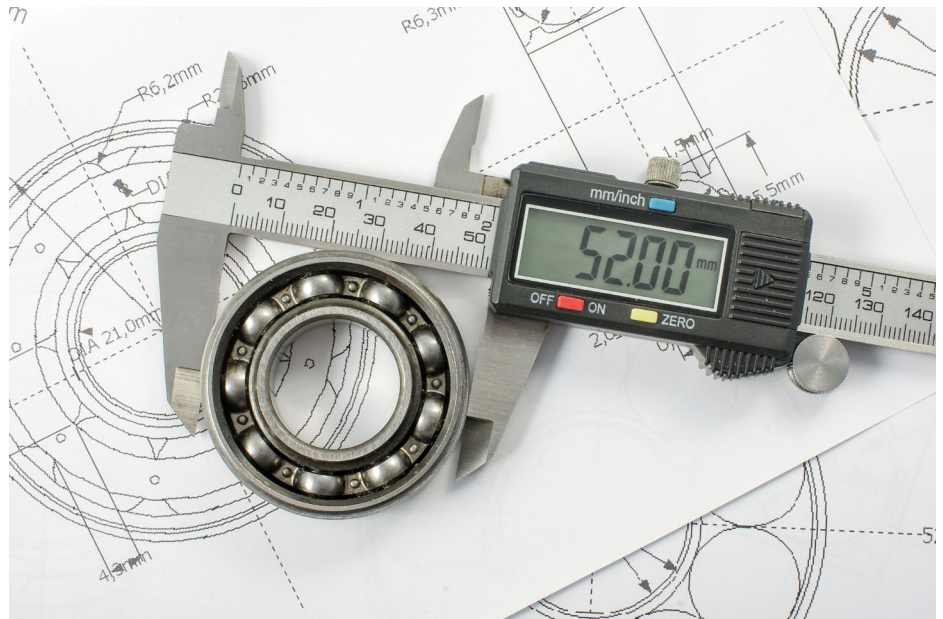
There are two bearing load considerations to take into account: amount and type.

The amount of load can be calculated from the basic dynamic load rating and the effective equivalent dynamic load. The first is based on a constant load in the appropriate direction for the type of bearing [e.g. radial for radial bearings]. The second allows for external forces such as from power transmission, gravity and inertia.

The type of load then needs to be assessed. Is it continual, steady, changeable, rotating, oscillating, or even a shock load?

5. Environmental influences

Depending where the bearing is operating, and its application, there may be important environmental influences to consider. For example, does it need to be protected against rain, humidity, solvents or vibration radiation? Are there any vibrations?



“ Environmental influences to consider ”

6. Regulatory requirements

Again depending on the bearing's operating environment, there may be regulatory requirements and standards which the grease must meet. In a food production area, for example, the grease will have to be food safe, with NSF H1 approval. In other environments, such as maritime, it may need to be an Environmentally Acceptable Lubricant (EAL). There are also regulations applicable to greases for use in the manufacture of toys, cosmetics, pharmaceuticals and many other areas.

The right result

When you provide all the necessary information, an OKS lubrication expert will be able to help you find the right grease, and can also advise you on the right place to apply it, the right time to do so, and the right amount to use. [It's often not appreciated that too much lubricant can do as much harm to a bearing as too little.]

Finding the information and getting the advice is well worth the effort. Because when you use the right grease in the right way, you can expect improved asset performance, increased reliability, reduced maintenance and downtime, lower energy costs, and higher productivity.

In other words: know your bearing lubricant rights and you can't go wrong.



Troubleshooting & maintenance of your pneumatics.

How competent are you?

Pneumatic systems can often be complicated beasts if you're unfamiliar with these types of set-ups. It might sound old fashioned, but the best way to familiarise yourself with something new is to dive in and learn first-hand. Luckily for you, Festo have done the hard work and designed a training module to push you along on your pneumatics learning journey.

Designed as an introduction to fault-finding and maintenance in pneumatic and electropneumatic systems, and how to avoid common mistakes and inefficiencies, Festo's latest learning opportunity provides a comprehensive overview including: the specification of components, reading and understanding pneumatic/electromagnetic circuits, and systematically identifying faults.

Each area of content has been strategically designed to improve your approach to maintenance and efficiently deal with a varying degree of breakdown scenarios.

12 steps to success

When undertaking any training course, the main question you should ask yourself is 'what will I take away from it?' Well, this offering from Festo delivers in a range of areas including:

Following a logical approach to fault finding

- Eliminating unnecessary checks and replacement parts
- Reducing mean time to repair
- Interpreting pneumatic and electropneumatic diagrams

- Maintaining pneumatic systems
- Approaching breakdowns systematically to find root cause
- Making correct adjustments to optimise performance
- Understanding the relationship between pressure and flow
- Dealing with intermittent pressure drops/fluctuations
- Explaining common mistakes and their consequences
- Understanding the importance of safe practices

These practical sessions will provide you with the opportunity to put theory into practice, simulating common issues to help you get an understanding of the reasons behind, and consequences of, real-life situations. Festo's aim is simple: to ensure an effective transfer of learning to obtain the skills needed.

What's the target group

Understanding that a wide variety of roles require different levels of learning, Festo's pneumatic training course is suitable for all personnel involved with the maintenance,

production, design, installation, operation, and servicing of industrial pneumatic equipment and control systems.

So, there's no excuse to miss out. Get yourself signed up today!

Each of the courses will take place across two days and are available in-house or at one of Festo's national training centres, with practical exercises forming a major component throughout the whole course.

If you are interested in setting up this seminar for your wider team, drop an email to jayne.bodsworth@eriks.co.uk who will work with you and Festo to get a date in the diary to make this happen.



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Mixed messages on green investment?

Listen to any interview with a Government spokesperson or, on the increasingly rare occasions they're allowed to be interviewed, a Government Minister, and you'll be deluged with statements about 'world-beating', 'world-leading' and 'record' levels of investment in everything from the NHS to transport infrastructure. This is especially true when it comes to the area of climate warming, renewables and green energy – subjects that are especially topical as the UK hosts the United Nations Climate Conference COP26.

In many respects, the UK is leading the way in green technologies. For example, according to the trade body WindEurope, the UK invested over £11 billion in offshore wind in 2020, more than any other country in Europe. Meanwhile, the UK Government has published a 10 point plan for a green industrial revolution. This includes highlights such as £1 billion of funding for a Carbon Capture and Storage Infrastructure Fund, a £240 million Net Zero Hydrogen Fund, and a target of increasing investment in green research and development to 2.7% of GDP by 2027.

These are all laudable – and necessary – commitments. The devil, as the saying goes, is in the detail – or in this case, the delivery. Especially when there is often little of strategic substance underlying the headline-grabbing slogans and billion-pound numbers; when contradictory messaging starts to emerge from the same sources; or where conflicting data begins to be published by independent bodies.

As a counterpoint to the Government claims of record investment in green technologies, the TUC recently published research

indicating that the UK is second to bottom amount G7 economies for its record of support for green investments and jobs. The report claims that, scaled by population, the UK's green recovery investment plans are just 24% those of France, 21% of Canada, and 6% of the USA's plans. The report also points out that the UK Treasury investing just £180 per person on green recovery and jobs over the next decade; by comparison, the USA plans to allocate £2,960 per person on green recovery, jobs and programmes such as public transport, electric vehicles and energy efficiency retrofits.

The contradictions don't of course, end there. There has for example been considerable media coverage about the proposed oil exploration licences for the Cambo field near Shetland, while a public outcry over the environmental risks of a new coal mine in Cumbria resulted in confused Government messaging and U-turns. Mixed messaging can also be found around the scrapping of the feed-in subsidy for home installation of solar panels and the debacle of the Green Homes Grant, which was abruptly cancelled after 6 months.

This all leads to the inevitable conclusion that, in common with much Government strategy – and this applies to Governments of all colours – there is a distinct lack of joined-up thinking or long-term strategy. This is bad enough when it comes to areas such as healthcare, industry and education, where industry professionals are at least able to maintain a level of service despite inconsistent Government policies. However, when it comes to climate change, which requires coordinated, sustained and wide ranging national and international action, it is critical that the Government takes the lead with a clear vision and a long-term plan.

The Government's 10-point plan is an excellent starting point. What is now needed is the leadership, vision and detailed planning to enable all of us – business and consumers alike – to make the day-to-day changes that collectively will deliver the vital reductions in emissions that are essential to save the planet. With the evidence of climate change growing every day, we no longer have time to spare.



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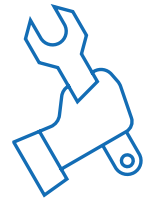
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*Maintenance records over 2 years at iron ore mine in Sweden



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