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Why the best voltage and current Condition Monitoring systems can tell you so much more than simple ISO vibration readings

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For more information see our website or contact us direct.

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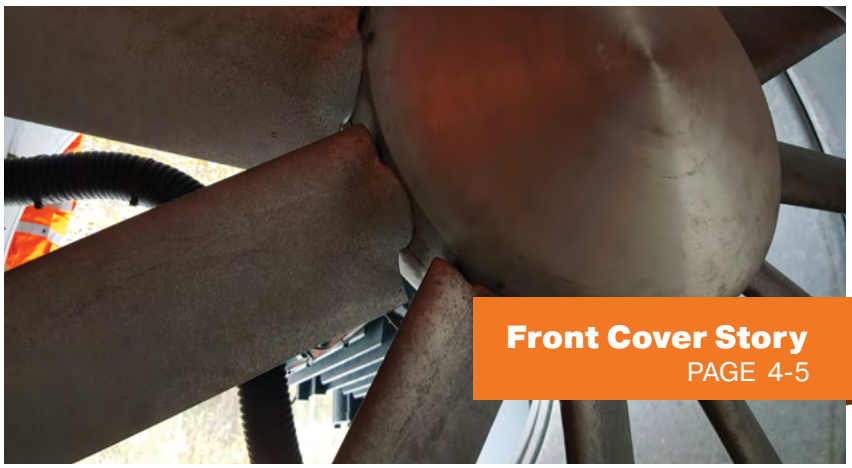

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Why the best voltage and current Condition Monitoring systems can tell you so much more than simple ISO vibration readings

For many people, "condition monitoring" means little more than getting someone to take some vibration readings on your machines and compare the overall levels of velocity or acceleration with a standard threshold number – the sort of thing that can be seen in table A.1, which comes from ISO 20816-2.

Table A.1 — Values for bearing housing or pedestal r.m.s. vibration velocity at zone boundaries

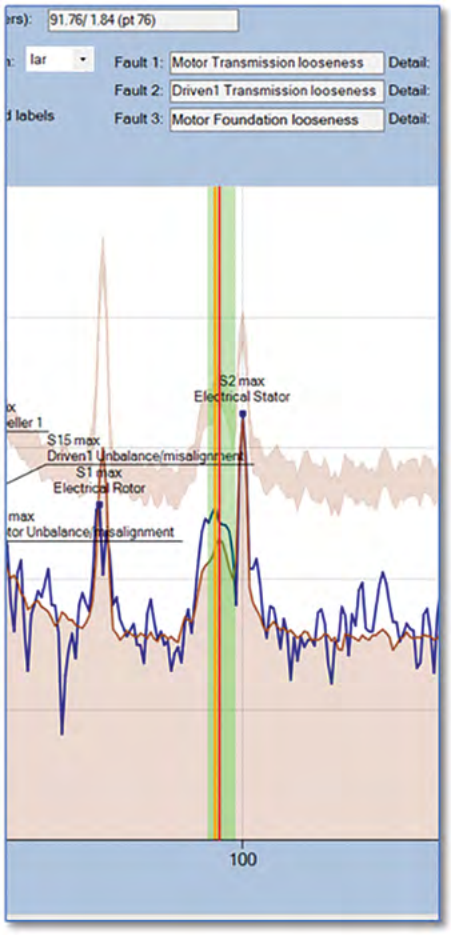
		Bearing housing or pedestal r.m.s. vibration velocity at zone boundaries mm/s		
	Shaft rotational speed r/min	Zone boundary A/B	B/C	C/D
Steam turbine and generator	1 500 or 1 800	2,8	5,3	8,5
	3 000 or 3 600	3,8	7,5	11,8
Gas turbine	3 000 or 3 600	4,5	9,3	14,7

If the readings are below the acceptable standard then the machine is OK, while if the readings are above this level, then the machine is faulty.

According to Geoff Walker from Faraday Predictive, this approach hugely undersells the value that can be obtained from a really good Condition Monitoring approach.

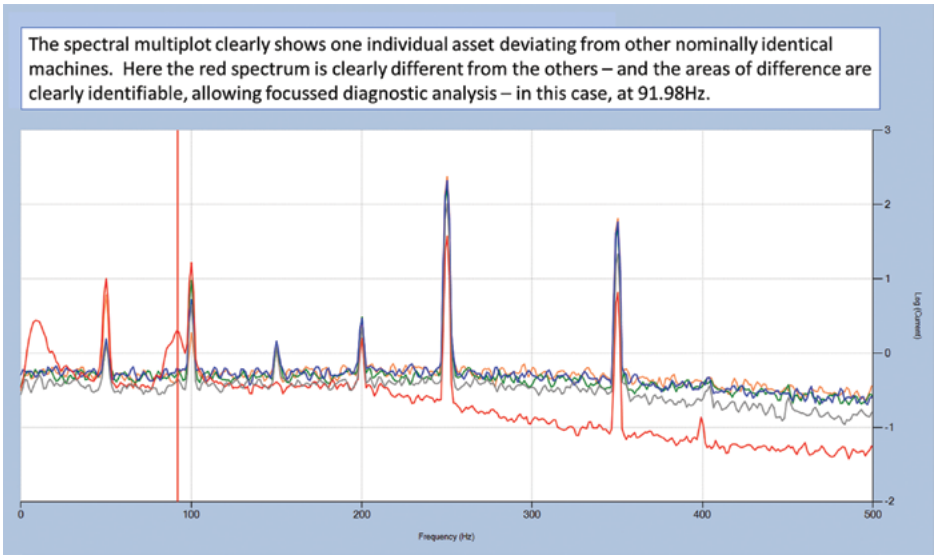
Firstly, using a single number to assess a machine's behaviour is too simplistic; a single number covering the entire range from 2Hz up to 2kHZ doesn't communicate the richer picture of machine behaviour. Machines don't just vibrate at the same strength at all frequencies; rather they each have their own characteristic "fingerprint" spectrum with different amplitudes of vibration at different frequencies. Using a single number to represent the entire spectrum can hide all sorts of interesting behaviour in the machine.

Secondly, the levels that are appropriate for the machines used in the ISO standards such as gas turbines and generators as shown in the table are not representative of many of the machines in use in typical industrial situations. In an ideal world, you'd like to be able to compare the fingerprint of your machines against the sort of fingerprint you could expect from that same particular type of machine – like an ISO standard for each of your individual machines.



Above: Figure 2

Below: Figure 1



Thirdly, just condemning a machine as "unacceptable" because the overall RMS vibration level is above a particular figure doesn't help identify the nature of the problem or provide guidance on the appropriate corrective action.

But it doesn't have to be like this. Nowadays, the best voltage and current based systems (MBVI systems) use the drive motor as a sensor of equipment behaviour, to give a much broader perspective of machine condition, including a complete fingerprint of normality for this machine, and how this changes with different load and speed conditions, so they can provide a consistent

indication of condition regardless of how load and speed vary, avoiding false alarms. They also allow you to compare your machine against baselines of normality for that general machine type – as illustrated in figure 1.

The client has 12 nominally identical machines – large, safety critical fans, operating on nominally identical duties. Figure 1 shows how most of the plots are very similar, but the red one is clearly different, with some pronounced humps and spikes around 10 hz, 50hz and 90 Hz.

Figure 2 shows how automated diagnostics allow the user to dig in and drill down – here zoomed in on the 90 Hz hump, showing that the system identifies the most likely causes of this pattern as "transmission looseness" (= rubbing friction) or foundation looseness. This gives maintenance teams a clear guide on where to focus their inspection efforts at the next maintenance.

Above: Figure 3

All this is done by just measuring current and voltage being drawn by the motor from the switchroom – in this case using a portable kit as shown in the photo (figure 3), but in other cases done 24x7 using a permanently installed system mounted inside the motor starter cabinet.

And this was done without opening the electrical cabinet by making use of existing protection system test sockets as shown in figure 4.

Below: Figure 4

The conclusion to be drawn from this example is that monitoring the mechanical condition of your machines doesn't always mean taking vibration measurements, and that you can do better; Model-Based Voltage and Current systems give you information on the same faults as vibration analysis, and the use of multivariate baselining to cover different speeds and load allows them to automatically diagnose specific faults whilst avoiding false alarms. And of course, being based on electrical measurements, they can provide information on electrical faults in the machine, problems with the electricity supply, and information on energy consumption and energy wastage. What's not to like?

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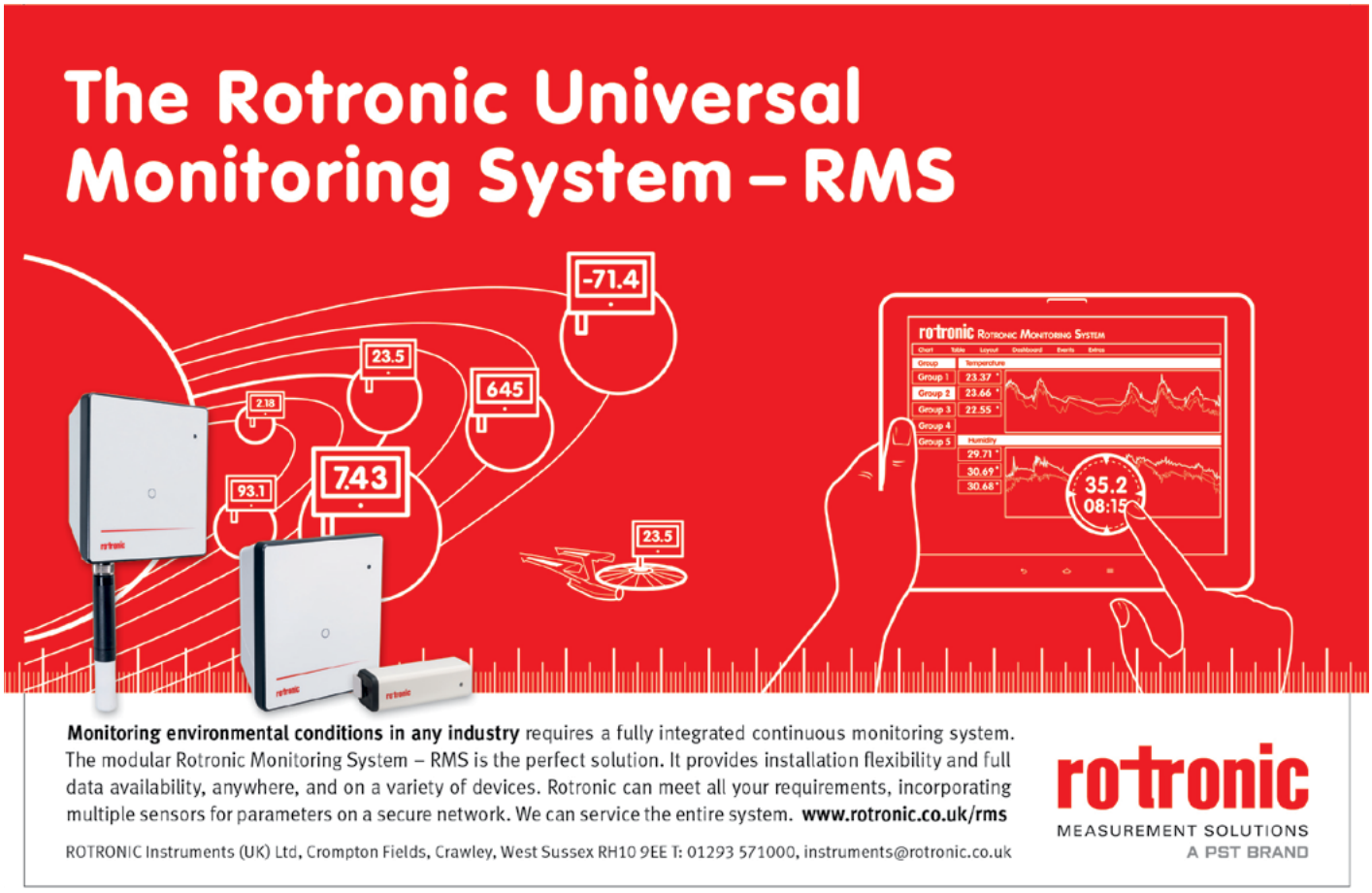

Air Particle Measurement

A light scattering airborne particle counter determines the concentration of particles and is capable of counting and sizing single airborne particles and reporting size data in terms of the equivalent optical diameter.

The main sizes monitored are 0.5 µm and 5 µm and are reported as particles/m3 or particles/ft3; the ISO 14664-2 standard specifies a flow rate of 1 cfm for counter particles that are equal or larger than 5 µm. Lighthouse, Particle Measuring Systems, Beckman Coulter and Climet are just a few manufacturers of precision measurement particle counters.

ISO 14664-2 states that continuous environmental monitoring provides significant benefits with a detailed overview of cleanroom performance; alerts and alarms must be defined. The Rotronic monitoring system is a continuous environmental monitoring system that integrates all existing particles counters. The implementation of the Rotronic Monitoring System will help to achieve the ISO 14644-1. Continuous monitoring confirms consistent, high quality environmental conditions with any changes detected as soon as they happen.

The Rotronic Monitoring System Solution

The Rotronic continuous environmental monitoring system (RMS) is a GAMP©5 category 4 software combined with category 1 hardware, helping users monitor their GxP compliant applications, looking into the critical quality attributes and monitoring critical process parameters, focusing on patient safety, product quality and data integrity with compliance to EudraLex Annex 11 and FDA 21 CFR Part 11. RMS is a modular system, particle counters from several manufacturers can be integrated easily enabling measurements to be available on demand for authorised users, on any device, with alerts and alarms configured.

Fore more information visit www.rotronic.com

RMS Pharmacy Starter Kit

Pharmacy laws and control of therapeutic products require controlled storage of medicines.

For example, insulin and some antibiotic syrups need to be stored in special refrigerators. The temperature in these refrigerators must either lie constantly at -20 °C or in a range of 2 °C to 8 °C. Storage must also be traceable. A temperature range of 15 °C to 25 °C applies to less sensitive medicines.

For monitoring of such refrigerators, we offer a special RMS Pharmacy Starter Kit comprising:

Hardware: 3 x RMS-MLOG-T10-868 & T10-0003, RMS-GW-868
Software: RMS-CLD-SMP

For more information visit www.rotronic.com

The important role that 'smart sensors' play in improving reliability while delivering cost-efficiency.

David Stevens, Technical Authority and Skills Competence Manager for AVT Reliability®, explains the important role that 'smart sensors' play in improving reliability while delivering cost-efficiency.

A company looking to digitalise its condition monitoring (CM) programme should carefully consider the capabilities of the technological tools currently on the market, to ensure they get the best return on investment.

The selection of sensors - the device fixed to a rotating machine to take measurements such as vibration and temperature - is a good place to start.

Fixed sensors with low price tags are available, but they require physical monitoring, cannot be configured to the process, and produce no analytical data.

By contrast, advanced 'smart sensors' demand a higher price but deliver:

- Configurability
- Detailed analysis
- High data storage
- Accessibility and hazard limitation

Configurability enables a smart sensor to collect readings after a pre-determined time period and only when the machine is running. After a specified period of anything from one hour to four weeks, the sensor 'wakes up', ready to collect a full set of triaxial vibration readings - particularly valuable for batch process applications.

With systems such as Machine Sentry®, the portal uses component templates with predefined vibration measurements. This can facilitate different frequency ranges and lines of resolution for vibration measurements, depending on the rotational speeds of the components. While many sensors only work between 10Hz and 1kHz, a smart sensor can be configured to take readings up to 5.5kHz, delivering more information at a far greater range and enabling a more tailored CM solution.

It can also measure the components' surface temperature - particularly useful for continuously running machines.

Digital data collection enables up to 5,000 readings to be stored securely in the cloud, provides real-time analysis, issues alerts about impending problems and suggests pre-emptive action to avoid unscheduled downtime. This information can be accessed via any web browser, from any location.

A smart meter provides accessibility to hard-to-reach assets or those in chemical environments, while remote data collection from, for example, an offloading pump, removes operator risk.

One chemical company saved £252,320 over 12 months after digitalising its CM – proving the adage 'you get what you pay for'.

www.avtreliability.com

Award-winning solution reduces unplanned downtime

With unplanned downtime as a core concern of Finnish cement producer Finnsementti, part of the CRH Group, they chose to use the wireless condition monitoring solution from Schaeffler, OPTIME. This allowed them to monitor practically every rotating machine at the plant on a largely automated and permanent basis, thus reducing their risk.

The Challenge

Finnsementti has been producing cement, concrete, lime and other raw materials at its plants in Parainen and Lappeenranta for over 100 years. The company's primary concern is plant downtime. With around 90 machine failures occurring on average each year, the majority of which are caused by auxiliary units, you can see why.

In such cases, production is suspended completely for up to 2 hours. The most critical units are motors, gearboxes, pumps and fans. Finnsementti were also looking for a solution that would provide greater security for personnel as auxiliary units are generally difficult to access, meaning accidents are inevitable.

Finnsementti had not previously installed CM solutions for the purpose of monitoring auxiliary units, as these were too expensive and for the most part, did not work wirelessly. For this reason, they decided to seek assistance from Schaeffler.

The Solution

Schaeffler OPTIME was recommended as a comprehensive CM solution. OPTIME can be installed and initial operation carried out without any prior CM expertise. With several hundred measuring points being easily set up in the space of a single day.

OPTIME comprises of wireless sensors, a gateway, and digital service. The sensors are responsible for monitoring machines and devices. The gateway receives the data from the sensors and transfers this to the Schaeffler Cloud. The data is analysed using the digital service and an error diagnosis is created on the basis of algorithms. The customer receives clear statements about the condition of their machines via a mobile app.

The installation work, which involved fitting around 150 sensors to motors, fan pumps and gearboxes, as well as mounting the gateway, was completed in just a few hours. The mobile app allowed hundreds of machines to be monitored directly.

The OPTIME sensors are fitted to a variety of equipment, including fixed speed electric motors, gearboxes and a combination of support bearings; variable speed electric motors and fans and a combination of support bearings; and fixed speed electric motor/fan combinations.

How does it work?

OPTIME is an easily scalable system. The data captured by the sensors is analysed using specially developed algorithms that draw on Schaeffler's technical expertise, its extensive storehouse of physical models developed and refined over many decades, as well as the experience in condition monitoring that it has built up over the course of its bearing servicing operations.

OPTIME provides several weeks' early warning of damage to machine components. It also provides early warning of imbalances, misalignments and knocking. The app presents trends in graph form and visualises the severity of incidents using traffic light colours, alarm states and other information.

Transparency of machine condition

Tony Virtanen, Maintenance Engineer at Finnsementti Oy comments: "With OPTIME, our maintenance staff have the transparency over the condition of most of our machines without the need to watch them closely all the time."

Tommy Ranta, Plant Director at Finnsementti Oy states: "OPTIME is reasonably priced and easy to install, which enables the monitoring to be scaled up to cover a large number of machines in a cement mill. Schaeffler also has a broad knowledge of condition monitoring and specifically of the machine motion. We appreciate that very much."

Red Dot Design Awards

OPTIME was a winner of this year's Red Dot Design Award in two categories, "Smart Product" and "Industrial Design" thus confirming the outstanding product design, functional configuration and high level of innovation demonstrated by the digital service solution from Schaeffler.

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OPTIME
enables me to keep an eye on hundreds of machines in just a few hours – which makes OPTIME a quick, easy and economical condition monitoring solution.
www.schaeffler.co.uk/OPTIME

SCHAEFFLER

Parker launches new generation of oil condition monitoring technology

Parker Hannifin the global leader in motion and control technologies, has announced an innovative oil condition monitoring technology that is set to help marine operators reduce downtime, reduce costs, and protect assets.

Developed in close collaboration with marine experts, the DIGI Plus has been designed to offer rapid on-site and on-board oil condition monitoring to improve productivity and increase uptime for the marine industry.

The company's DIGI cell technology, which was introduced in 1993, has become a go-to solution for the marine sector to monitor oil condition. The DIGI Plus combined test cell, the latest innovation in the range, enables operators quickly and easily to test for water in oil and for the base number of oil samples. It also will help users to detect out-of-spec oils and lubricants and identify potential problems before they become critical.

The DIGI Plus has a built-in test memory for recording up to 50 individual test results as part of a pre-programmed test plan, whilst also having the capability for miscellaneous or spot tests as well. Test results are downloaded using a USB cable and the downloaded data can then be used as part of a trend analysis programme. The USB cable can also be used for battery charging of the DIGI Plus cell.

Having been developed for use in challenging conditions, the DIGI Plus features an improved backlit colour display that provides better visibility, especially in poor light conditions. The colour display has been designed to simplify identification of alarm conditions and pass or fail results, whilst also guiding the user through important test steps such as cell cleaning. The cell has been constructed from lightweight glass reinforced plastic with non-slip twist grips and aims to reduce handling fatigue during testing.

The DIGI Plus combined test cell offers both water in oil (H2O) and base number (BN) testing and comes as part of Parker's DIGI Plus Field Test Kit, which also incorporates three other test measurements: acid number; insoluble loading and basic viscosity.

Shaun Skilton at Parker said: "With nearly 30 years of oil conditioning monitoring expertise behind it, Parker's DIGI Plus solution has been shaped around the needs of engineers and maintenance staff working in the marine industry. We're proud to have developed cost-effective technology which will help keep the marine sector moving by reducing risks, protecting essential assets, and decreasing the downtime caused by engine and equipment failure."

Parker provides online and on-site solutions for monitoring critical plant and industry machinery. Its sensors and equipment pieces facilitate rapid and informed decision-making which helps to keep machinery running efficiently for longer.

For further information, please visit: www.parker.com/digiplus

Winn And Coales International Acquires Global Viscotaq Business Including Amcorr Products And Services Inc

Winn & Coales International Ltd expands corrosion prevention and sealing products portfolio as they acquire the Viscotaq™ business, including Amcorr Products and Services, Inc

Winn & Coales International Ltd ('Winn & Coales'), leading manufacturer of corrosion prevention and sealing products announce today, the acquisition of the global Viscotaq™ business, including Amcorr Products and Services Inc ('Amcorr'), manufacturer of viscoelastic protective coatings.

Amcorr Products & Services Inc, based in San Antonio, USA are the formulators and manufacturers of viscoelastic protective coating technology, Viscotaq™. The patented Viscotaq™ product range is used for corrosion prevention and sealing applications on vital infrastructure across a broad range of sectors. The unique, self-healing technology of Viscotaq™ offers asset owners outstanding, long-term protection against corrosion.

Amcorr was originally established in June 2000 in San Antonio, USA and thereafter rapidly became the North American market leader of viscoelastic coatings and sealants in the corrosion industry.

Edwin Welles, President of Amcorr and co-inventor of the Viscotaq™ technology commented: "We feel honoured being part of the Winn & Coales family now. A similar business culture, with a privately-owned structure and a technology driven mentality was a natural fit for us. The acquisition will give Amcorr the opportunity to grow rapidly, both nationally and internationally and above all, guarantee dedicated service and supply to existing and future clients across the globe. I personally feel privileged to make the next step in my career at Winn & Coales, a leader in our industry with an outstanding reputation."

For more than 90 years, the Winn & Coales International Group of companies has been creating bespoke and off-the-shelf solutions that provide enduring protection against corrosion and chemical attack to buried and exposed pipes, valves, fittings, steelwork, marine structures, tanks and concrete bunded areas.

The acquisition of Amcorr is aligned with the Company's focus on investing in and providing the highest quality corrosion prevention solutions for their customers.

Chairman of Winn & Coales International, Mr Chris Winn commented, "The acquisition of Amcorr is particularly exciting for the Company, as the Viscotaq™ product line enhances and complements our existing range of coatings, which are already well established in the market. We are now able to offer all corrosion prevention technologies to our customers, and we look forward to building on our leading brands further with our new colleagues at Amcorr."

After 138 years of trading, Winn & Coales International Ltd remains a privately-owned business. Through their seven subsidiary companies in the UK, USA, Canada, South Africa, Australia & New Zealand, together with their global network of distributors, they are able to provide tailor made solutions to challenging corrosion problems all over the world.

For more information visit:
www.denso.net

Forward dive for long-lasting Landia mixers at St Andrews

Following an intricate diving operation, ESD (the joint venture involving Galliford Try, MWH Treatment and Black & Veatch) has completed the successful upgrade of its mixing operation at Scottish Water's Wastewater Treatment Plant (WWTP) in St Andrews, Fife.

In 6m-deep zero-visibility wastewater, three divers (and a dive manager) ensured that there was no interruption to the crucial aeration process in the oxidation ditches, which since 2002 has been served by three very low rpm Landia mixers.

Situated close to where the sport of golf was first played in the 15th century, just a few miles from the oldest golf course in the world, the WWTP, which has UV filters for its final effluent, is in an extremely sensitive area that welcomes visitors from all over world. At just 34 rpm, the 4kW Landia mixers very gently mix sludge so as not to cause any process-damaging floc shear.

"The Landia mixers have always worked well", said St Andrews WWTP Site Manager, Alan Mearns. "This is the type of reliable equipment we want as ESD delivers improvements to Scotland's water and wastewater infrastructure".

He added: "Working purely by touch in such a challenging environment wasn't easy at all for the divers, but over the 3-day installation that included new guide rails, they did a great job in ensuring that we could still maintain sufficient flow for our process".

In addition to the three adjustable-pitch submersible Landia units in the main oxidation ditch, there is also one Landia mixer in the Sludge Holding tank for SAS (Surplus Activated Sludge) and one in the anoxic Inlet Tank.

Apart from a 10-minute stop every 4 hours, the three Landia mixers in the oxidation ditch run 24/7, sustaining a required gentle flow of just 0.3 metres per second. Landia's in-house team will also service the mixers every 6 months.

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New from ARI: The double eccentric High Performance Valve – the economical alternative, for temperatures from -40°C to +260°C (max. +400°C). With butt weld ends (up to DN 1600), double flanged (up to DN 1200) or wafer type (up to DN 800).

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Eaton's new CMT mobile valve section increases design flexibility and reduces valve bank size with two-service control capability

CMT expands the CMA advanced mobile valve family

The power management company Eaton has announced the launch of the CMT mobile valve section, a streamlined new section option for the CMA advanced mobile valve. With the capability to control two bidirectional services from one section – an industry first – the CMT valve section increases design flexibility and reduces CMA valve bank size, weight and overall system cost.

Like the existing CMA mobile valve section, the new CMT section is software-configurable and features CAN communication, on-board sensors, digital flow-sharing and electronic load-sensing to provide precise flow control and high responsiveness. While the CMA section features independent metering, the CMT section utilises the twin-spool architecture to control two services instead of one. This can reduce the total number of sections needed in a valve bank by as much as 50 per cent, minimising valve-bank size and weight.

CMT mobile valve sections are stackable with CMA sections, which increases the design flexibility of the CMA advanced mobile valve. Original equipment manufacturers (OEMs) can optimise the valve for all vehicle requirements by specifying sophisticated CMA sections for services that demand superior precision and control and streamlined CMT sections for standard machine functions. The availability of two stackable section options simplifies the use of the CMA valve on high-end and mid-range machines without parts proliferation, due to shared components and procedures.

"The new CMT mobile valve section reduces overall system cost without sacrificing performance," says Jiri Foukner, EMEA Product Manager, Advanced Mobile Valves, Eaton. "OEMs can merge the next-generation performance of CMA sections with value-oriented CMT sections to create the optimal valve solution for new mobile machinery designs."

The CMA advanced mobile valve significantly improves machine performance and operator productivity. Featuring on-board electronics and sophisticated software algorithms, the CMA valve can optimise for conditions such as oscillation and vibration to deliver better stability, controllability and fuel efficiency. The software-driven set-up eliminates hardware replacements and enables performance optimisation in minutes instead of months, speeding time to market.

To learn more about the CMA advanced mobile valve and CMT mobile valve section, visit Eaton.com/CMA and Eaton.com/CMT.

Nissan Accelerates Assembly Line With 3D Printing Solution

The automotive giant has revolutionised the fabrication of jigs, tools and fixtures across its Barcelona manufacturing line, reducing costs by 95% and lead times from one week to just one day.

Having successfully integrated 3D printing into its production process in its Barcelona factory, automotive giant Nissan now has the proven capability to expand its use of the technology in the UK.

The car manufacturer has been using 3D FFF (fused filament fabrication) technology from BCN3D – a world leading developer and manufacturer of integrated 3D desktop solutions – to create tools, jigs and fixtures for its manufacturing line in Spain and the time and cost savings have been so impressive that it could soon roll it out to more manufacturing sites.

It has created 700 parts so far, with some costing as little as 3.45€ to manufacture.

Previously Nissan outsourced all of its prototypes and jigs to mechanical suppliers who used traditional manufacturing methods, such as CNC and drilling. Although the quality of the finished product was good, the lead times were long and inflexible and the costs were high. Even simple tools could cost in the region of 400€ for machining. By printing some of these parts in-house with 3D printers, Nissan has cut the time of designing, refining and producing parts from one week to just one day and slashed costs by 95%.

Additive manufacturing, or 3D printing, is becoming more popular in the automotive sector, helping manufacturers to shorten development cycles and get vehicles into production quicker. 3D printing also helps to significantly reduce component production times without compromising on their quality.

Nissan's additive manufacturing laboratory is equipped with a farm of four BCN3D printers, which offer proven reliability and are capable of running 24/7 to meet Nissan's intense production schedule. The printers incorporate an Independent Dual Extrusion (IDEX) system, which means that Nissan can print two identical components at the same time, thus crucially doubling productivity.

Nissan is also using the recently launched BCN3D Smart Cabinet – a groundbreaking new solution that has been developed to preserve filament printability, extend its shelf life, reduce aesthetic defects and avoid costly reprints.

Using CAD applications, including Autodesk Inventor and Siemens NX, the Nissan team has adapted its entire design process to integrate 3D printing and has found it to be easier than a mechanical one.

Carlos Rellán Martínez, manager of maintenance & engineering facilities at Nissan Motor Ibérica Zona Franca, Barcelona, says: "The performance achieved in terms of reliability has been excellent. Our printer runs nearly 24 hours a day and every year we're printing around 100 different jigs and tools for specific use in our processes.

"Outsourcing tools to a mechanical supplier was 20 times more expensive than 3D printing the same parts, while the wait for tools went from a week down to one day. By introducing 3D printing, we have increased added value and generated low costs, without high delivery times. We have paid off the investment in the printers very quickly."

The Nissan team has used BCN printers to produce a multitude of products, including a tool to fix a windshield centering gauge, a lower drill positioning tool and a jig to position and cure the

model name on the vehicle. The fixing tool was made of TPU, cost 8€ and took a total of 14 hours to print, the positioning tool was made of ABS, took 15 hours to print and cost 21.50€ and the jig was created from ABS, took 12 hours to print and cost just 3.45€.

Nissan is currently printing 3D materials in plastic and is trialing metal. It recently invited video cameras into its Barcelona factory for a rare glimpse of how Nissan is using 3D printing to manufacture final parts and prototypes on its assembly line for vehicles, including the Nissan Navara 4x4 pickup truck.

Eric Pallarés, chief technical officer at BCN3D, adds: "The automotive industry is probably the best example of scaling up a complex product with the demands of meeting highest quality standards. It's fascinating to see how the assembly process of a car - where many individual parts are put together in an assembly line - relies on FFF printed parts at virtually every stage. Having assembled thousands of cars, Nissan has found that using BCN3D 3D printing technology to make jigs and fixtures for complex assembly operations delivers consistently high quality components at a reduced time and lower cost".

For more information, please visit www.bcn3d.com

Pump Maintenance Guide

Pumps are often designed to operate at a single point known as the Best Efficiency Point (BEP). As components begin to wear, a pumps performance begins to decline, with operation away from this point leading to issues such as accelerated bearing or seal wear, vibration, excess temperature rise or cavitation.

Above: A mechanical Seal failure undetected for some time caused fluid to pass into the bearing, contaminate the above bearing housing cover leading to subsequent bearing failure and costly repair.

Quite often declining performance can start gradually, before quickly accelerating until failure if performance issues are not addressed in a timely fashion.

Pump maintenance is needed to restore performance, reliability and ensure process performance is restored to original design criteria.

There are 3 types:

- Corrective (Reactive)
- Preventative (Semi Proactive)
- Monitoring (Proactive & Predictive)

Corrective Maintenance is undertaken when failure has occurred. The unit may be leaking, efficiency reduced, pump stopped or motor tripped, leading to loss of production resulting in an urgent situation where parts must be sourced and fitted quicky.

At times specialist labour may be required but also specialist lifting equipment. The average cost of downtime is £12K per incident, takes on average 8 hours to resolve and occurs 4 times a year. This is without considering customer dissatisfaction, and product wastage, so ideally this situation is one to be avoided.

Preventative Maintenance is inspection and repair scheduled at specific intervals (daily, weekly, monthly, yearly) or based on the number of hours run. Visual inspections are made externally and internally by dismantling the unit, replacing seals such as gaskets and mechanical seals, with pump parts checked for wear.

A typical preventative Maintenance Checklist Consists of:

Differential Pressure: Check the operating pressure by calculating the difference between the inlet and outlet pressure of the pump ensuring it is operating on curve.

Vibration – Ensure vibration is minimal, and within designed limits.

Noise – Check for high pitched squealing, grinding, or the sound of gravel within the pump (cavitation). Check noise limits are within design limits.

Excess Temperature – Check motor, bearing and casing temperature. Thermal imaging cameras can detect excess temperature quickly, without stoppage, dismantling or contact with the unit.

Corrosion – Check for corrosion on parts such as main body, flanges, impeller & casing plug.

Gaskets – Monitor swelling, Wear or leaks from the casing.

Wearing Part Tolerance – Check parts are within design tolerance through use of a vernier. Measure Shaft OD and condition, Impeller Diameter, bearing tautness around the shaft and casing thickness.

Motor Measure current draw, continuity of windings and condition, whether bearings should be renewed, grease & oil levels.

Mechanical Seal (barrier fluid) – Check for contamination such as changes in general colour or appearance, PH, presence of particles, viscosity, or if fluid is at excess temperature during operation.

The cost of Preventative Maintenance & Relationship of Preventative Maintenance to Corrective Maintenance

The “6 to 1 Rule” discovered by John Day Jr, (Manager of Engineering & Maintenance at Alumax South Carolina stated that the ideal ratio of Proactive Maintenance (PM) to Corrective Maintenance (CM) should be 6 to 1 - 6 PM checks to 1 RM check. If your ratio is below this then according to his theory it is being inspected too infrequently, above and inspections are too frequent.

Source: https://www.lce.com/Analyzing-the-Relationship-of-Preventive-Maintenance-to-Corrective-Maintenance-1091.html

Although Proactive Maintenance can seem to avoid the urgent costs and downtime associated with reactive maintenance, PM maintenance costs can be high due to the cost of labour in dismantling of complicated designs such as Progressing Cavity, or Triplex Plunger pumps which are often time consuming to maintain with more than one person required to undertake work.

On dismantling units, some seals require replacing regardless of condition, and excess spares can be required in case of gasket entrapment during assembly. Rental of specialist lifting equipment may be required and there can be situations where when inspected, pump parts do not require replacement.

Monitoring

The ideal situation is to ensure components are replaced before failure but not so far in advance that they have experienced little wear with valuable time spent on inspecting components which are otherwise fine.

This can be achieved through a monitoring device, where when the right data is collected, pump failure can be anticipated between 3 and 12 months in advance with an 80-95% accuracy.

With the average lead time on DN100 pumps, and units over 5 years old being 3 months or more, it is essential that spares are either on the shelf or failure is anticipated through advance ordering.

Monitoring devices can vary significantly in capability, and should provide the following to ensure failure can be forecast with sufficient time to plan:

High Frequency Data – Data is collected across a broad spectrum detecting the first stages of abnormality. Cheaper units typically collect data across a 1000Khz spectrum which will provide very little time to react. Our Overwatch device monitors over a 65,000Khz spectrum.

Sample Length – Long sample lengths ensure data is captured for sufficient time to detect issues. A long sample length for fast rotating equipment is 22 Seconds (at 48Khz) or 110 seconds for slowly rotating equipment ensuring a detailed overview is provided.

Above: A Loose Grub screw located at the bottom of the Coupling leading to increased losses in power transfer and shaft damage.

Rapid Min/Max Average Monitoring – Monitoring minimum and maximum values quickly such as current draw, or torque increase due to motor failure, pump blockage or leakage ensure reliable data is reported swiftly without missing key peaks or troughs which can go unnoticed with infrequent data collection.

AI Forecasting – Forecasting data within trends enables machine health forecasting. This allows advance repair decisions to be made, budgets forecast, correct resource allocation and enable stress reduction within supporting teams.

All of the above features work in harmony to ensure there is sufficient time to react, unplanned work is eliminated, and downtime avoided.

Our Top Tips

Thread Sealant – The use of semi-permanent thread sealant will ensure vitality important threaded fasteners such as bolts or screws on shafts, couplings or pump casings do not self-loosen due to vibration and become disengaged.

Interchangeable Spares – Our range of pumps are modular in design utilizing interchangeable spares, meaning on site stock holding of parts can be reduced by up to 80% further reducing slow moving stock.

Repair & Replace – Choosing to repair an existing pump within a process of vital importance, as well as replace, is a strategy we recommend for maximizing plant efficiencies and reducing downtime. Should unexpected pump failure occur, your process can be restored quickly.

Checklists & Logs – The use of checklists and logs ensures a fully repeatable process ensuring important maintenance intervals are not missed. Logs can provide valuable insight and reveal a pattern before failure occurs enabling easier troubleshooting.

If system changes are logged insights can be obtained between cause and effect. If maintenance activities are recorded on site, should key people leave, key information remains accessible rather than leave with the engineer. Our Maintenance Schedule indicates which areas should be checked, but note that a units maintenance routine is dependent on several factors such as hours of operation, duty, aggressiveness of pump medium, rpm of motor, temperature, inlet conditions and location of equipment.

If your unit is in need of overhaul, spares or help with diagnosing failure, we are here to help.

Sales@northridgepumps.com
www.northridgepumps.com
Tel: +44 (0) 1773 302 660

ALUP innovates lower energy industrial compressors

With manufacturing and service industries under pressure to reduce carbon emissions, as part of the government's 'Net Zero' roadmap, leading industrial compressor brand, ALUP, has launched an upgraded range of oil-injected air compressors, which have a significantly lower environmental footprint.

ALUP's innovative Sonetto models feature a revamped air end element, which facilitates a market-leading increase of 15% in Free Air Delivery (FAD) output and a reduction in energy consumption on selected models of up to 12%.

At the same time, its development of a full range of options allows the compressor to operate on a low duty cycle typically seen on piston machines, where the demand for air is intermittent. The combination of an anti-condensation oil heater, tropical thermostat and a larger 500-litre air receiver thereby allows the unit to operate on very low duty cycles and also avoids the issue of condensation forming within the oil.

Where there is a need for large volumes of air on continuous demand, such as an industrial production process, ALUP's Sonetto belt-driven screw compressors can be configured accordingly. Units are available either floor mounted, tank mounted or tank mounted with refrigerant air dryer, the latter version delivering a 55% reduction in Global Warming Potential (GWP) over previous generation screw and dryer packages. This is a result of the change from R134a HFC refrigerant gas to R513a HFO refrigerant gas used within the refrigerant dryer. Compressor power ranges from 2.2 to 7.5kW in either 8 or 10 bar versions and distributors also have the option of a pressure conversion kit for flexibility in stock holding and to ultimately ensure the end user gets exactly the right pressure unit for their application.

Offering a fully-integrated configuration with combined air receiver, tank, filtration and refrigerant dryer, provides customers with a compact, silent unit, that not only costs less to install but also means it can be located closer to the point of use, requiring less pipework. Internal componentry has been designed to allow for easier maintenance and removable service panels enable quick access.

Commenting on the launch of its upgraded compressors, Mark Keen, Business Line Manager at MultiAir UK & Ireland, which supplies the ALUP brand to a network of distributors, said:

"Within the production and service industries, compressed air is often referred to as the fourth utility, so ALUP remains committed to improving efficiency and performance, as well as pursuing ways of reducing energy consumption. These latest innovations to ALUP's Sonetto range of screw compressors have been developed in conjunction with customer requirements, whilst recognising the urgent need to lower carbon emissions in every sector. Improving the work environment for operators by minimising noise has also been a key factor, so these upgraded machines provide a compelling overall business solution in a challenging economic climate."

For more information visit:
https://www.alup.com/en-uk

Hi-line boosts environmental credentials even further with switch to R513a refrigerant

Hi-line Industries, an established and reputable UK manufacturer of high-quality compressed air purification equipment, has released the 2021 version of its energy-efficient Tundra refrigeration dryers.

Most notable among the enhancements is a switch of refrigerant to R513a in models up to and including Tundra 115 (115 cfm, 195 m3/hr capacity). A HFC/HFO blend, R513a refrigerant has no ODP (Ozone Depletion Potential) and a much reduced CO2 impact in comparison with the previous R134a refrigerant. As a result, customers can rest assured that Hi-line is continuing its commitment to sustainability in manufacturing by minimising its carbon footprint.

The F-Gas regulation means that refrigerants with a GWP (Global Warming Potential) of more than 2500 are now subject to a ban. However, while R134a is below this limit and remains legal, it is sufficiently high for the regulation to stipulate an incremental phasing-down of production quotas to help reduce environmental impact. R513A is widely viewed as the optimum replacement.

Importantly, R513a is an A1 safety group refrigerant and is neither toxic nor combustible. Unlike flammable refrigerants, R513a is subject to less stringent regulations in handling, maintenance intervals and compulsory leak tests, thus saving time and money.

Switching to R513a builds on the sustainable credentials of the Tundra range, which is already renowned for its optimised energy efficiency via capabilities such as minimal pressure drop and lower absorbed power. Reduced energy consumption is vital in today's ultra-competitive marketplace, which is why Hi-line has worked hard to offer customers a dryer solution that drives down energy costs.

The company's integrated Direct Expansion technology delivers a constant +3°C dewpoint, unlike a chilled mass dryer, which can be as high as +10°C during its thermal cycle. Furthermore, the single-cell, all-aluminium heat exchanger module provides highly efficient heat transfer at low energy cost, while a further notable energy-saving attribute is the variable-speed fan, which only consumes the energy necessary to meet essential operational needs.

A robust, high-quality build standard is another attribute of these class-leading dryers. For instance, by controlling the fan speed on the refrigerant circuit there is no need for fan-pressure switches, which can often become defective in dryers of this type. The fewer moving parts, the more reliable the product, making it ideal for applications that include workshop air and machine air in general manufacturing, as well as further uses in sectors that include packaging, textile, food, beverage, medical, dairy and automotive.

Hi-line's standard Tundra range is available ex-stock at from the company's Burton factory for next-day delivery. Six models in the series feature R513a refrigerant, with dryer selection based on factors such as maximum compressed air flow, lowest operating pressure, maximum ambient air temperature and maximum air inlet temperature. Expert assistance from Hi-line's applications team can help customers to select the optimum dryer.

As a final note, since the UK's departure from the EU, new legislation has entered force concerning the import of Freons. Any company importing pre-charged refrigeration equipment that carries a CO2 impact of more than 100 tonnes per annum is required to register on the Environment Agency website for an F-Gas account and record the CO2 amount in tonnes relating to those imports. As Hi-line imports the refrigeration units for its Tundra range, the company has successfully obtained a new licence and fully discloses its imports and volumes in order to comply completely with the legislation.

Further information is available from
Hi-line Industries Ltd,
01283 533377
enquiries@hilineindustries.com
www.hilineindustries.com

BCAS' new training course helps operators breathe easy this Love your Lungs Week

To mark the start of the British Heart Foundation's (BHF) Love Your Lungs' Week 2021 (21st – 27th June 2021), the British Compressed Air Society is launching its new breathing air regulations training course at https://rebrand.ly/BCASbreathingair - and reminding all operators of the vital importance of ensuring a clean and healthy supply of air for employees using breathing apparatus.

The BHF estimates that as many as one in 30 people could be affected by lung disease, with the year's campaign aiming to raise awareness of external contributing factors, such as rising air pollution levels, as well as promoting healthy lifestyle choices.

Compressed air is used to provide respiratory protection in a range of applications where it would be dangerous to breathe in the ambient air; including paint spraying, fire and rescue and diving and SCUBA, to name a few.

However, as any contaminates in the ambient air are drawn in during compression, it is essential that the air is purified appropriately and in accordance with the recognised European safety standard EN12021.

Entitled Breathing Air Regulations: EN12021, this latest course in the Society's portfolio of compressed air training provides a thorough understanding of the legal requirements and how to mitigate for any health and safety risks. It is also available with 25 per cent discount for customers of BCAS members.

The one-hour, e-learning course includes the identification of the different types of contamination found in breathing air and the variety of sources, as well as understanding the different methods of breathing measurement, with a focus on safe exposure and safety limits.

The regulations

The law states that compressed gas for breathing air shall not contain contaminates at a concentration which can cause toxic or harmful effects. These legal requirements are found in a variety of different regulations, including the personal protective equipment regulations 2002, the work in compressed air regulations 1996 and the control of substances hazardous to health (COSHH) regulations 2002.

BS EN 12021 'Respiratory Protective Devices – Compressed air for breathing apparatus' however, is the only standard to indicate contaminant levels for breathing air both in the UK and in the EU.

Testing methods

The regulations specify a range of different testing methods and frequency, with EN12021 requiring air samples to be taken at least every three months, or more frequently if there has been any change in the production process. This includes dew point and the fact that water may condense in breathing air pipelines, causing the growth of micro-organisms as well as moisture content, which can cause regulators to freeze and result in equipment failure.

The course also concentrates on the potential presence of harmful gases in the breathing air, such as carbon monoxide (CO) and carbon dioxide (CO2) and their removal.

Roy Brooks, Technical Development Officer at BCAS concludes:

"The BHF's 'Love Your Lungs' campaign is a great reminder for all operators about the importance of ongoing testing and maintenance of their breathing air equipment. The contaminates present in the ambient air around us can reach dangerously high levels when compressed and, if not treated correctly can pose a real safety risk to employees.

"The good news is that there a wide range of simple, low-cost testing methodologies that can be used to ensure that the air is always clean, contaminate free and of the appropriate quality.

"Our latest e-learning course guides air users through the legislation, how to identify the risk and importantly, how to remove the hazards to ensure employee health and safety is not compromised."

To find out more about BCAS's Breathing Air Regulations' course and to book a place, please visit https://rebrand.ly/BCASbreathingair. To learn more about the BHF's Love Your Lungs Week 2021, visit www.blf.org.uk/take-action/campaign/loveyourlungsweek

For further information about the additional 25 per cent discount, contact your local BCAS member, email training@bcas.org.uk or call 0207 935 2464

Novosound honoured in global awards ceremony for product innovation

Novosound, a leading ultrasonic company based in Scotland, has overcome competition from some of the biggest organisations in the world to win its first international honour at the 2021 Materials Performance Corrosion Innovation of the Year Awards.

Organised by the Association for Materials Protection and Performance (AMPP), Novosound received the award in the Testing category for its revolutionary Belenus ultrasound sensor, which provides corrosion monitoring across a variety of structures and environments in a range of industries.

The awards are organised by Materials Performance, which is published by NACE International and is the world's largest circulation magazine dedicated exclusively to corrosion prevention and control.

The honour for Belenus is the company's first major industrial award, and also its first on a global scale. Manufactured using Novosound's patented, thin-film technology, the Belenus is the world's first corrosion monitoring sensor that can operate completely soaked in high-temperature atmospheres up to 400°C (752°F) for extended periods of time.

By providing highly accurate and real-time corrosion data from remote and inaccessible locations, the Belenus enables power plant, refining, processing, and manufacturing facility owners and operators to detect corrosion in metal pipework and structures early and reliably. This facilitates improved maintenance planning and increases operational efficiency, as corrosion issues can be actioned and mitigated before unexpected failures occur.

Dr Claire Thring, Application Specialist for the Novosound Belenus, said: "The current limitations of ultrasound probes can be traced back to the core rigid, ceramic, sensor materials used in manufacturing, but by using our patented, truly flexible, core thin-film material, the Belenus can conform to any surface curvature.

"The flexibility of the Belenus, coupled with its compact size – roughly the size of a Zippo lighter or car key fob – allows it to be fitted to a range of structures including pipes, storage tanks and pressure vessels, enabling 24/7 asset monitoring. The flexibility of the Belenus also allows it to conform to curved surfaces without the need for a couplant material.

"This has countless benefits for customers, including potentially eliminating the requirement to shut down assets for inspections, as well as carry out readings. Not only does this save companies time and money, but it also limits the number of occasions personnel are required to enter what can be dangerous environments."

Dr Dave Hughes, Founder and CEO of Novosound, added: "The Novosound Belenus, is a simple, smart ultrasound sensor that provides 24/7 corrosion monitoring across a range of infrastructures and environments.

"This award is a pivotal moment for the company, and we are delighted to have been recognised by our peers. We were up against some huge, global organisations, but to be honoured with this award at the CORROSION 2021 Virtual Conference & Expo is a big achievement for us.

"To even be considered for an award we had to show the Belenus had the potential for a significant positive impact in corrosion control, and we are delighted to receive this endorsement from others within the industry."

The Belenus is suitable for fixed installation in both extreme and ambient environments. By providing real-time, asset integrity data, the Belenus enables operators to proactively manage corrosion risk, making data-informed decisions and reducing the overall cost of operations.

One customer, a blue chip Energy Company based in the UK, explained how installing Belenus, on-site at one of their power stations, benefits their company, saying: "The Belenus is an innovative solution and will not only help better manage the health of our assets but bring significant efficiencies and cost savings with our maintenance management programmes."

Novosound is no stranger to winning awards, having previously been named as a finalist for the 2020 E&T Innovation Awards in the Future Unicorn category, while Dr Hughes was honoured with the Institute of Directors Scotland Director of the Year – Start-up award last year.

Based near Glasgow, Novosound's ultrasound sensors have all been invented and produced in Scotland and have already attracted a long list of clients around the world in the oil and gas, energy, renewables, medicine, aerospace and automotive markets. Its products are helping transform the Non Destructive Testing industry thanks to their unique underlying technology, which helps test metal pipework and structures no matter what shape or size, or what temperature they are operated at – with the Kelpie, Belenus and Nebula products solving problems that have existed for a generation.

For more information visit www.novosound.net

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King's Roll Out the Red Carpet

When leading UK carpet manufacturer Adam Carpets decided to replace their existing boiler plant, they approached boiler manufacturers for costings on two new 2,700kg/hr boilers.

However, high prices and long delivery lead times prompted Adam Carpets' Director, Chris Adam, to contact boiler specialist KING'S BOILERS enquiring if they had similar boilers in stock. Being the UK's leading supplier of refurbished boiler plant, Kings were pleased to say they had three matching Cochran Thermax boilers complete with dual fuel burners and PM5 controls.

King's Director, David King, discussed the carpet manufacturer's requirements in detail, offering the fully re-conditioned units from stock and an order was promptly placed for two boilers complete with new chimneys. King's team of engineers soon had both boilers stripped down, completely refurbished with all valves serviced, NDT certificated, test fired and delivered to site all within Adam Carpet's 6-8 weeks' time frame.

Director, Chris Adam expressed his surprise at just how much he saved by going to King's Boilers rather than buying new saying "King's boilers came with the normal 5-year NDT certification that we would have had with new ones, as well as having a warranty. They were completely overhauled and serviced and are now working in full production. Most importantly for us was King's ability to meet our lead time. New boilers would not only have cost us much more but could not meet the delivery date we required. Overall, we have been delighted with the price and service provide by King's Boilers".

If you are looking for a Steam or Hot Water Boiler competitively priced and available from stock contact David King at KINGS BOILERS today to discuss your requirements.

Call +44 (0) 1992 41629

Email: sales@kingsboilerhire.com

The evolution of the high-speed door

The industrial door has come a long way since the introduction of the high-speed door concept in the mid-1980s writes Chris Dobson.

The oldest British manufacturer of the high-speed is Hart Doors Systems (Hart Doors) of Newcastle upon Tyne. Its chairman, Doug Hart, says he had been looking at his own factory where access was via hand operated roller shutters. "Every time access was required it took several minutes to open/close the shutters during which time the outside world blew in. This was bad for heating costs and especially bad for the working environment," says Doug Hart, chairman, Hart Doors.

"It was almost Dickensian. If only we could develop a high-speed, automatic doors where the opening/closing cycle was just a very few minutes. From initial thoughts to developing the first Speedor as a test-bed took several weeks but once installed heating costs plunged and the working environment was considerably improved. We have moved on considerably since then."

He adds: "Now pushed by carbon reduction targets, global warming and the challenges of climate change industry has started the crusade towards greater automation, slicker procedures where fewer people are employed but where the fundamentals of each business remain the same. "Deliveries will still take place and products will still leave factories and warehouses which means where there is increasing automation, the high-speed door has a vital part to play. Typically the automated warehouse is the current challenge where very large buildings rely on state-of-the-art technology, software, computing robotics and wider automation across every element of the warehouse. Naturally the automated, high-speed door is a part of this process."

Mr Hart says automation is an important element of manufacturing but recognising that the economy comprises hundreds of industrial categories where there are complex issues, the common dominator for Hart is the need for advanced automatic door systems.

For example at Nissan's Sunderland plant Hart has significant number of doors some to ATEX standards in the case of a new paint plant. In a fast-moving environment, with the need for a reliable and dust reducing solution, Hart installed ATEX-rated Speedor Cleanrooms to maintain strict air leakage limits and to ensure maximum protection for personnel.

At nearby Komatsu, the challenge was safety and reliability in a highly efficient 200,000 sqm facility. Here each Speedor was made-to-measure with devices and activators fitted to suit specific areas, giving Komatsu a safe and secure working environment for its employees.

With hygiene at Arla Foods a priority and food production areas requiring specialist doors to promote cleanliness and avoid contamination, Hart replaced unreliable aluminium bi-parting doors with stainless steel with Speedor Minis. Made to measure the high speed roll up Speedors had multi-layer PVC fabric which are thicker and less prone tears and splits. The stainless steel allows for easy cleaning and contamination prevention.

There can be no more frantic an environment than at international airport where Hart has worked on over 40 across the globe. At Heathrow the demanding specifications and operating requirements due to the high frequency of pedestrian traffic and the necessity to continuously work with minimal downtime, Hart needed to supply reliable doors capable of handling thousands of bags per hour while providing a seal in the event of fire.

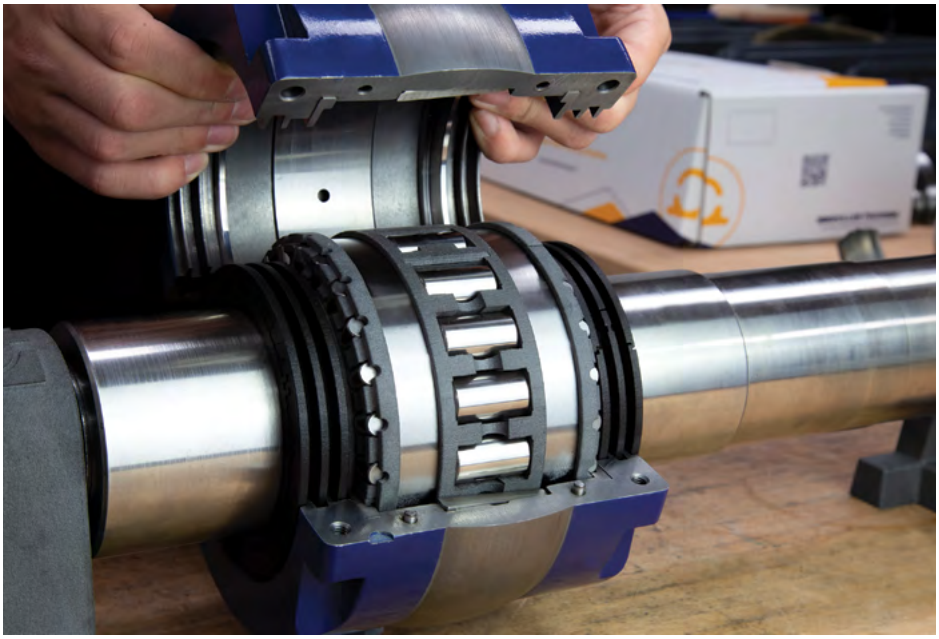
Hart designed, manufactured and installed 50 specialist and unique Speedor Conveyor automatic smoke screen systems capable of handling 6000 bags per hour, while providing a seal for 30 minutes in the event of fire. For Veolia, Hart was faced with difficult conditions on site including dust, dirt and moisture. Door failure could affect compliance with local authority regulations. The solution was to install 8m x 8m Speedor Storms, an extremely robust door capable of withstanding wind class 5 due to its unique guide system.

Using multi-layer PVC fabric which is thicker and less prone to tears and splits and moisture-controlled electrics the Speedor Storms, through their high-speed action, control the escaping dirt, odours and noise.

www.hartdoors.com

Bearing The Cost Of Failure In High-Load Applications

Bearing failures can be costly, disruptive and in some cases dangerous. Ian Breeze, Technical Director for Bowman International, considers three of the main reasons for bearing failure in high-load environments – and explores why it is so important to make the right decision first time.



There are three main reasons for bearing failure: bearing fatigue, poor maintenance practices and the incorrect selection bearing material. In high-load applications, these potential points of failure are amplified, but addressing them during the specification process could help designers and decision-making engineers to make the right decision first time. In doing so, many facilities can harness untapped performance, time and cost efficiencies that they were unaware of.

Bearing fatigue

First and foremost, it is vital to select the right bearing for the application in question to prevent premature bearing fatigue. There are many types of bearing to choose from, including plain, spherical, needle, ball and split roller bearings to name but a few. Each of these bearing categories has many variations within it, such as sintered, wrapped, composite or machined, and then there are sizes, seals, lubrication and performance enhancing extras to consider.

The majority of customers know exactly what their bearing needs to do. They know the load, speed and environmental requirements that will reduce fatigue, but need advice on what type of bearing can deliver those capabilities most efficiently, and at the right cost.

Selecting the right bearing will influence not just the initial purchase cost, but potentially other factors including the cost of ongoing maintenance, lifespan of the bearing and even how efficiently the equipment works. Often, when working closely with a bearing manufacturer, customers realise there are clear benefits to switching to an alternative bearing type, from the one style they have been specifying to date.

The new Bowman Advanced Split Roller Bearing for example is specifically designed for high load applications and can improve performance and drive cost efficiencies compared to solid bearings for systems with high radial and axial load requirements. In fact, this bearing offers up to 75 percent higher radial load capacity and up to a 1000 percent increase in axial load capacity compared to other split bearings.

This is really where a whole-market manufacturer and supplier, not restricted to any single type of bearing, can add real value through independent advice.

Material selection

The choice of material is another important decision that can affect system performance, bearing life and OPEX costs. Bearings are manufactured in a range of materials to suit a range of purposes including sintered bronze, sintered copper, rolled bronze, cast bronze and various plastics. Composites, stainless steel and other alloys are also widely used to meet the needs of certain applications.

As material science evolves, so too can bearing design and now for the first time in bearing history, 3D printing is also being used by Bowman International to facilitate the use of complex geometries to radically improve bearing life, load and performance whilst keeping cost- and time-to-market low.

Ease of maintenance

Reducing downtime is an important driver in any industry, especially those with restricted system access, mission critical operational parameters or high levels of customer demand to meet.

Choosing split bearings over solid bearings for example can save time during installation and maintenance because they are assembled radially around the shaft. This eliminates the need to disconnect the coupling and move other equipment, such as motors, gearboxes or pumps out of the way to access the shaft - making installation up to ten times faster.

The Bowman Advanced Split Roller Bearing even uses the rollers to lock the two cage halves together, eradicating the use of small and easy to lose clips and other locking components. Further enhancing the performance of this revolutionary split roller bearing is a patented triple labyrinth seal which not only offers a tighter seal than other split bearings, but also reduces the need for costly removal, machining or replacement of worn shafts.

For more information on Bowmans Advanced Split Roller Bearings, visit: www.bowmansplitbearings.com

Composite Pipe Repair Extends Pipe Life By 20 Years & Cuts Costs For EDF

The decision by power generation company EDF to repair, rather than replace, leaking pipework at its nuclear power plant in Bugey has proved hugely beneficial both practically and financially.

Maintenance engineers used Henkel's LOCTITE® Composite Pipe Repair System to restore the integrity of 170m of fresh water pipes, a process that was undertaken without the need to stop production and at a cost that was 35% less than the replacement value.

The LOCTITE Composite Pipe Repair System is a sustainable solution that has already proven its cost-effectiveness across many industrial sectors including energy and petrochemical production, paper converting, water treatment and chemical processing. And in common with other users, it has enabled EDF to extend the service life of its damaged steel pipes by up to 20 years with a repair that is certified to the global quality standard, ISO 24817.

Located around 75km from the Swiss border, the EDF plant occupies 100 hectares and currently houses four, pressurised water reactors. A network of pipes supplying raw water to the demineralisation station date from the plant's original construction and, after 40 years of service, some sections required multiple and complex repairs.

The renewal of the DN168 and DN508 sections would have required a complete by-pass system to be installed to ensure the continuity of the cooling process. So, engineers from EDF's Valves and Boilers Department sought a repair solution that would not only avoid the high cost of pipe replacement but also the expense and time involved in installing the temporary by-pass.

EDF chose the LOCTITE Composite Pipe Repair System because it is an all-in-one solution designed to repair damaged or corroded elements where high impact resistance and protection against corrosion and external attack are required. All system elements, from the effectiveness of the product and process to the way the system is applied and managed in the field, are covered by the certification process. Central to the system is a resin-based composite material reinforced with fibres. It is similar to materials developed by Henkel under its LOCTITE brand that are successfully serving manufacturers of rotor blades for wind power generation or lightweight components for the automotive industry. Applied at ambient temperature, it is suitable for repairing punctures and other wall defects and, depending on the type of fault, the process can generally be carried out under pressure to eliminate downtime.

As well as metal pipes, the system is also suitable for repairing conduits, tanks and components with complex geometries such as bends, tees, reducers and flanges.

The process

Every repair is different but, typically, the first step in the process is to clean and sandblast the surface of the damaged area. As this treatment

exposes the site to flash rust, the corrosion inhibitor LOCTITE SF 7515 is applied to provide immediate, temporary protection. As appropriate, the original outer pipe diameters are then restored by filling the cavities with LOCTITE EA 3478, a proven ferro-silicone filled epoxy compound that provides outstanding compression strength. This product was specifically developed for renewing surfaces subject to compression, thrust, impact and harsh environments.

The pipe is then wrapped with high-strength, glass carbon-fibre tape, LOCTITE PC 5085, that has been impregnated with the temperature-resistant,

two-part epoxy resin LOCTITE PC 7210; this product is designed for bonding steel substrates and exhibits exceptionally high adhesion.

The final step is to seal the repaired section with the sprayable ceramic topcoat, LOCTITE PC 7255, a two-part epoxy that is also WRAS approved. The resultant composite repair effectively reinforces steel pipes for continued duty under high pressure and thermal cycling while increasing their resistance to internal and external attack.

As part of the solution package Henkel provided EDF with calculations of the proposed repair designs. These differ from project to project depending on a range of parameters such as the forces acting on the pipeline, temperature, pressure and extent of damage. Specially developed software then determined how the repair should be executed. This too is covered by ISO 24817 certification so EDF could be certain of the safety and efficiency of the process.

Huge potential

Steel pipes and pipelines are extremely capital intensive, irrespective of whether they are used to transport gas, water, crude oil, waste water or any other medium. So, the lifetime of these transport systems is a critical factor for any operator; it pays to extend their service life for as long as possible beyond their planned amortisation and depreciation period.

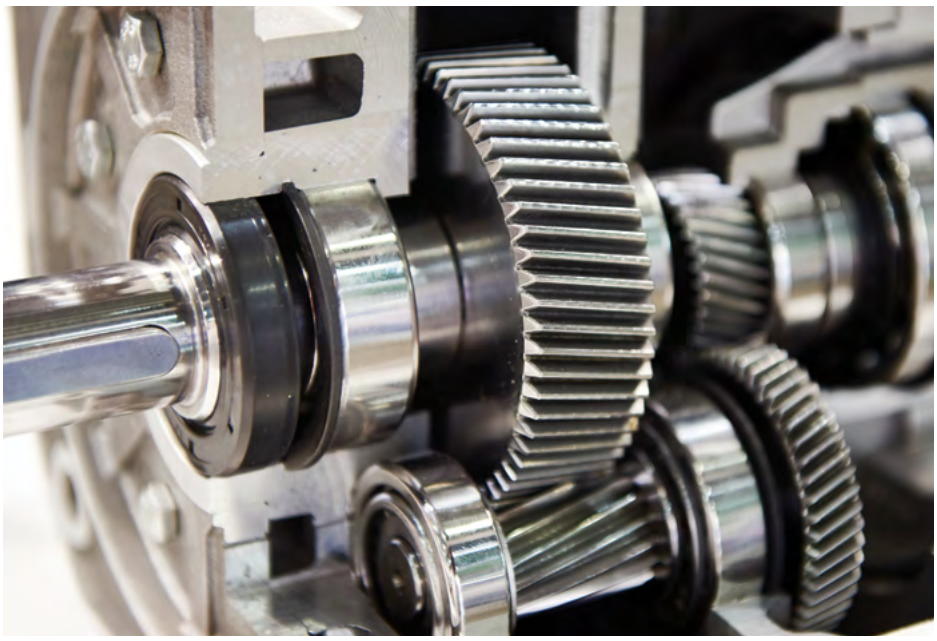
The LOCTITE Composite Repair System brings together a series of products that have been field proven over many years. Their combined attributes create a method of pipe repair that is attracting a lot of attention across the processing, petrochemical and power generation sectors because it can increase pipe lifetime by up to 20 years. This benefit in combination with the fact that the repair can be undertaken without stopping production, represents huge operational cost savings.

For more information go to:

www.henkel-adhesives.co.uk

How to Maintain Your Seals During Periods of No Use

It is vital to check your seals constantly whether the machinery is being used or not. Especially during periods of no use, this is the perfect time to check your seals for any signs of damage and wear that you may need to address. It's important to do this as seal failures can lead to equipment problems which may be detrimental to your equipment and business.



Whether you deal with hydraulic or pneumatic seals such as wiper seals, they must be able to withstand a range of environments and practises such as extreme temperatures, high pressures, chemicals and contamination.

In this article, we will give you some tips on what to watch out for when looking for problems in your seals and how to maintain your seals during a period when they are not being used.

Proper storage

If a seal is in a period of no use, storing them properly can prevent future failure. Properly storing seals includes putting the seals and their hardware in a cool environment. You must also disassemble the seals and sort each part individually, making sure not to store seal faces together as they could end up losing their flatness.

Lubrication

Lubrication is a must in seals and most machinery as it can prolong the life of seals due to the motion they are usually under. When looking at the seals, check that lube is present. If there is none present or only a small amount, place some grease around the seal. Checking for grease is important to prolong the life of your seal.

Contamination

Just because the machinery is not being used does not mean that contamination is not still present in the seal. If the seal has not been checked after its last use, then contamination may still be present. Contamination may come from metallic shavings, powder, dirt, mud, grit, and other solid particles. These may be picked up during operation and can damage the seal when passing through.

High temperatures

If the seal has been stored somewhere that has a high temperature, the heat can cause damage to the seal. The heat can cause the seal to harden and degrade quickly. The material of the seal can break off when hardened, and this can then cause more contamination along the whole machinery or pipe network.

Pressure

The pressure that your seal has been under could cause the seal to fail. This might have been because it is over pressurised. Check for pressure strikes in seals. If you can see any, then you may need to replace the seal with a one that is made to be under higher pressure.

Chemical deterioration

If there has been a corrosive fluid used, then this may cause a breakdown in the seals' material. You need to have made sure that the material the seal is made out of is right for the fluid passing through it. Especially when connecting a seal to a hydraulic system using chemical fluid, this may create fractures in a material. The chemical deterioration can cause swelling or shrinking of the seal.

Hopefully, this article has helped you understand seals more and how you can look after them after periods of no use. Whether your seals or being used or are in storage, maintenance is important to keep them in good condition for present and future use to make sure they don't fail.

For more information visit:
www.fpeseals.com

Can digitisation solve the engineering skills gap?

The acceleration of digitisation during the pandemic has brought into focus the opportunities digital training can offer, with the need to upskill and fill competency gaps with many teams still furloughed. Here Keith Tilley, CEO, Intoware explains how digitisation is addressing the skills gap on the factory floor.

The manufacturing skills gap in the UK has been well documented, according to PWC's 'Annual Manufacturing Report 2020', British manufacturers are now facing the largest shortage of skilled workers since 1989, with many citing this as the biggest challenge.

While the pandemic has accelerated digital transformation, it has exacerbated the increasing skills gap on the factory floor, while also creating new challenges for covid-safety and productivity adding yet further pressure.

This all means that the workforce needs to retrain to simply keep up, but the good news is that new digital technologies can help to upskill the next generation of workers, to ensure they have the skills they need to thrive.

Prior to the pandemic, Intoware (www.intoware.com) developed its automation platform WorkfloPlus integrated with augmented reality (AR) wearable headsets from Realwear. This platform converts out-of-date paper-based and manual processes into easy to follow, step-by-step digital work instructions for technicians to follow.

Since in our experience the challenge faced by manufacturers is that they still rely on paper processes to complete tasks. This may seem fine, but it fails to offer the accuracy or granularity that can be gained through digitising operations.

Imagine being able to see for example, how long each task really takes; taking photos or videos to record information in real-time; accessing a process by scanning a barcode or calling for live-help if things need attention – all through a simple mobile device or headset.

But most importantly, the platform provides critical data insights to help managers streamline anything from asset inspections to compliance - so how does digitalisation bridge the skills gap?

Bridging the 'skills gap' through knowledge transfer

It's important that when digitalisation is adopted that training is not overlooked. Companies are increasingly moving towards more engaging interactive, video-based learning. While Millennials and Generation Z are tech savvy and they don't want to learn with manuals or clipboards.

In industrial settings, wearable, head-mounted tablets with extendable boom-arm displays integrated with digital workflow software are attached to safety helmets enabling hands-free, voice-controlled access for trainees who are learning on the job.

They provide an augmented reality (AR) environment in which workers can easily use voice commands to watch short training videos, access manuals, view mechanical drawings, look up spare parts and access other materials critical for experiential training.

A front-facing camera can be used to make video calls and show a remote expert any problems that a trainee experiences – without requiring the use of his or her hands.

Connected worker platforms are also more appealing to younger workers, who are 'digital natives', they are comfortable with using mobile technology for daily tasks which also helps ultimately to retain new talent.

This is welcome news, given that the manufacturing industry is at a critical period in which the adoption of digital technology is accelerating, the volume of data is growing and the competition for new talent will inevitably increase.

The cost savings digital transformation can deliver will be critical to future success. But to capture the full value of these investments, manufacturers need the right skills to harness the use of technology to maximise its potential – which means using 'digital tools' to both upskill and retain the next generation as part of their daily operations.

www.intoware.com

Manufacturing the talent of tomorrow

In a first for the UK manufacturing and engineering industry, Next Gen Makers has launched the Engineering Apprenticeships: Best Practice Programme – an initiative designed to support firms overcome skills challenges and build talent for future success.

Equipping manufacturers with the tools they need to better plan for, attract and retain apprentices, the Programme provides a host of resources to enable engineering and manufacturing firms of all sizes to replicate proven methods adopted by other businesses that have successfully run Apprenticeship schemes for some time. Resources include an expansive online video library containing video interviews with a variety of manufacturers successfully running apprenticeship schemes, a toolkit containing 'how to' guides and quarterly virtual peer-to-peer meetups to enable ideas sharing and problem solving.

Built around the sharing of best practice, the Programme allows manufacturers to learn from each other and discover proven techniques to bridge their skills gaps, ensuring they have the talent needed to underpin enhanced productivity, innovation, profitability and growth.

The launch of the Best Practice Programme comes at a time when the industry is facing some of its biggest challenges to date. According to government studies, within five years, 20% of the existing workforce is set to retire, and to compound that issue, it is estimated that, each year, the industry is short by as many as 186,000 young engineers that it needs to join this contracting talent pool. As a result, the window for building a strong and capable workforce is narrowing, and the skills gap widening.

Adam Tipper, Managing Director of Next Gen Makers, commented: "For too long, the only answer to closing the engineering skills gap has been to encourage more youngsters into the industry, or to change its perception entirely. From our work doing this in recent years, we have found that to be only one part of the solution, with retention of young engineers within the industry being a much greater issue. Our research shows that, on average, just two out of five apprentices are successfully retained and we believe this is down to manufacturers' ability and confidence to run successful apprenticeship schemes.

"Interestingly, some manufacturers don't recognise the skills gap at all. These are the companies that really understand why they need to future proof skills within their workforce and how doing so contributes to them achieving business goals. Such manufacturers have successfully implemented apprenticeship programmes and are embracing a pro-apprenticeship culture within their businesses. We've worked with these successful businesses and learned their ways and, through our Best Practice Programme, we're bringing business leaders together to share a blueprint consisting of proven ways of attracting and retaining young talent for the long-term."

To develop the Engineering Best Practice Programme, Next Gen Makers has worked with its Principle Partners, MSC Industrial Supply Co. UK, who is committed to supporting its

customers drive efficiency, effectiveness and competitiveness.

Dave Darby, Managing Director of MSC, said: "In our work with more than 20,000 manufacturing firms, we're seeing an acceleration in plans to take on apprentices. Not only is this a cost-effective way of addressing the skills shortage, but also an approach which sees increased energy and enthusiasm amongst the workforce which helps to drive business performance. Helping apprentices to take their first steps in a rewarding career and receive the training needed to develop new skills, will allow them – and the industry – to grow.

"The work of Next Gen Makers in facilitating this is outstanding and we're proud to be supporting the launch of their ground-breaking Best Practice Programme."

To discover more about the Engineering Apprenticeships: Best Practice Programme, visit www.nextgenmakers.co.uk/best-practice-programme.

“Reliability services, technologies, support & training

For more than 20 years RMS have provided a comprehensive range of reliability and condition-based maintenance (CBM) products, services, support, and professional training solutions. Our expertise encompasses: Vibration Analysis, Motion Amplification, Thermography, Oil, Balancing, Laser Alignment, Ultrasonic and Motor Analysis.

Our partnership with industry OEM’s highlights the commitment we make to showcasing innovative technologies. One such example is RDI Technologies. Their revolutionary technology, Motion Amplification, is a video-processing product and software package that detects subtle motion and amplifies it to a level visible with the naked eye. RMS is also a UK approved distributor of Emerson/CSi Machinery Health Manager products and solutions.

The Reliability Training Institute is a UK & Ireland accredited Training Organisation for both Mobius Institute (MIBoC) and The British Institute of Non-destructive Testing (BINDT). Professional training courses in Vibration Analysis, Ultrasound and Asset Reliability prepare students to take the ISO certified examination. We use the very latest computer-based simulations and animations to help make even the most complex subjects understandable. Study options include Onsite, Hotel-based, Virtual Instructor-led and Self-paced courses.”

RMS
RELIABILITY MAINTENANCE SOLUTIONS

www.rms-reliability.com

Summers Coming – Look before it's too late!

Karl Lycett – Rittal UK's Product Manager for Climate Control

Even before summertime hits, we have already seen some good BBQ weather, with the mercury rising and letting us enjoy the great outdoors.

Great for you, but it doesn't bode as well for your electrical equipment.

At this point in the year, there probably won't be any alarms on your cooling equipment and therefore you're mind wanders to other important issues on your site which need more ready attention. Climate Control can wait... Right?

Wrong.. in fact, the opposite is true; this is the best time of year to turn your mind to your enclosures, carry out a climate review, and start to understand what changes or improvements need to be made before it's too late.

In a few months' time, things will be very different.. Fans and filters won't be cutting it if the ambient temperature is higher than you require inside your enclosures! While everything is settled down, it's worth assessing any problem enclosures from last year and making the necessary changes, to ensure that when summer comes you are free to spend your time on tasks other than firefighting.

It's important to remember that every degree above your set-point will be time removed from the life of your PLCs, variable speed drives and transformers. Collectively, this can easily have a replacement value that tops £100k, even in a relatively small setup. If you replace only 2% of that equipment each year because of burnt-out or damaged componentry, then the costs can quickly mount up and it's an entirely unnecessary spend.

But it's not just the cost of repair and replacement of the actual componentry. There are also the add-on operations costs caused by unexpected breakdown and stopping the processes it controls. This lost output will continue for as long as it takes to repair the fault and is bound to have consequences for your wider business, impacting productivity and efficiency, and thereby reducing profits.

Rittal – The System.

Faster – better – everywhere.

Are you COOL about the internal temperature of your enclosures?

ENCLOSURES POWER DISTRIBUTION CLIMATE CONTROL

Correct climate control is often overlooked during the installation of electronic equipment because the focus is all on the equipment, not on regulating the environment that it operates within.

This is where Rittal can help you, we are the world leaders in enclosure climate control products and pride ourselves on being your trusted advisor.

With our RiAssure service, one of our trained staff can visit you and provide a FREE Cooling Review. This review is a short visual inspection of your existing enclosures and cooling equipment; from this we can ascertain the next best step for your equipment and also provide ongoing, best practice, suggestions so that your operations benefit from increased longevity, life and profit.

So before summer arrives, reap the benefits of the optimising your climate control.

On Wednesday June 2nd we are hosting a free Webinar where Karl Lycett, Rittal UK's Climate Control Product manager will discuss this topic in more detail and answer your questions.

To sign up please visit - https://attendee.gotowebinar.com/register/6415899252477879822

For more information visit www.rittal.co.uk or to arrange a FREE Cooling Review, visit www.rittal.co.uk, call our customer service team on 01709 704000
or E-Mail cooling@rittal.co.uk

We're offering users of Rittal enclosure cooling equipment the opportunity to receive a FREE inspection survey*

Visit www.rittal.co.uk to claim yours

IT INFRASTRUCTURE | SOFTWARE & SERVICES

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*Limited-time offer. Terms and conditions apply. For full details please visit www.rittal.co.uk

EMMA - Sustainably Responsible Safety Footwear

100% Circularity in Materials Technology to Improve Your Carbon Footprint.

EMMA will help you reduce your carbon footprint - by supplying Safety Footwear that's completely made from a combination of recycled materials and materials that are recyclable. This '100% Circular' footwear offering is changing the lifecycle of safety footwear as EMMA steps up to be an active part of individual and corporate sustainability programmes.

For buyers and specifiers in all industry sectors including construction and manufacturing, logistics and warehousing, office and retail, hospitality and medical, EMMA safety footwear will make a double-headed contribution to their businesses – a value for money investment in workforce-wellbeing and a commitment to improving corporate social impact.

Every product in the EMMA range is safe for the environment with a '100% 'Circular' manufacturing, usage-mapping and recycling process for every shoe and boot produced under the EMMA brand – the supply-chain partner that's totally committed to sustainability and reducing waste.

Part of the Hultafors Group portfolio of market-leading PPE brands, EMMA complements the Solid Gear and Toe Guard safety footwear ranges by including all the Hultafors Group hallmarks of hi-tech designs that combine top quality materials for ultimate comfort, maximum safety and wellbeing at work.

To get more information on EMMA Safety Footwear, visit the website at www.emmasafetyfootwear.com , call the Snickers Helpline on 01484 854788 or email sales@hultaforsgroup.co.uk

Snickers Workwear For Summer – Cooling Technology and Verifiable Sustainability

Snickers Workwear = Comfort = Wellbeing and Improved Performance.

Everyone wants to be cool, and comfortable at work this summer – and to do their bit for saving the planet. That's why Snickers Workwear has integrated improved 37.5® fabric technology and 'Verifiable Sustainability' into its T- and Polo-shirts. The new AllroundWork styles are made from highly functional waffle- structured 37.5® fabric for optimal ventilation, cooling and moisture transport to keep you feeling fresh for longer.

And, with the aim of being at the forefront of sustainability in Workwear, the new lightweight Polo and T-shirts are made of 100% recycled polyester with a bio-based, anti-odour finish with a smooth texture and efficient moisture transport for great working comfort.

They've all got street-smart body-mapping designs for an amazing fit, outstanding functionality and long-lasting comfort – all day, every day.

Getting information on the Snickers' Summer Workwear range is easy. You can call the Hultafors Group Helpline on 01484 854788. You can check out the website and download a digital catalogue at: www.snickersworkwear.co.uk or email sales@hultaforsgroup.co.uk

Industrial technology company reveals new temperature controllers

Watlow's controllers optimize performance and reduce complexity

Industrial temperature controller manufacturer Watlow has released its LEGACY™ SERIES panel-mount (PM) temperature controllers, which are designed to optimize performance using a simple control and menu functionality. The range includes the industry first 1/32 DIN controller, which incorporates Bluetooth technology to enable EZ-LINK™, Watlow's mobile application for setting up, monitoring and adjusting its temperature controllers.

The LEGACY controllers, which can be used in medical, clinical, analytical and food industry applications, simplify the complexity often associated with PM controllers. The controllers offer many benefits including proportional integral derivative (PID) auto-tune for fast and efficient startup, a touch-safe package for increased operator safety, SMOOTHTOUCH™ keypad to eliminate contamination points and create a better seal on the front panel, while a function key provides simple, one-touch operations of user defined, repetitive activities.

Standard bus communications are also available on LEGACY SERIES controllers, allowing easy product configuration via PC communications protocol and free software — saving time, simplifying programming, and improving reliability of controller setup.

All LEGACY SERIES controllers are compatible with Watlow's EZ-LINK mobile app that connects via Bluetooth. This includes the sophisticated PM PLUS™ controller, designed to enhance user experience with an interface enabling easier set up, programming and readability, as well as the first 1/32 DIN controller.

"There was a need in the market for a simple controller for basic applications, so we developed the LEGACY SERIES to fulfill that void," said Andy Borkowski, product manager at Watlow. "Earlier this year, we introduced the 1/16 DIN and now we can offer the 1/32 DIN, the first of this size in the industry to incorporate Bluetooth technology.

"We understand that our customers don't always want or need the most powerful, high-end controller on the market. Some applications require basic control, and this product line is made for those situations. For example, in the design of the PM PLUS, we have reduced the complexity on the front of the controller and eliminated the dependency on cables and user manuals for configuring the product. This means the intuitive menu flow allows the controller to be easily configured.

"This is important because, historically, PM controllers are not easy to use. These upgrades help improve user experience by addressing the needs of our customers and simplifying the way the controllers are used," said Borkowski.

"Watlow is proud to offer the LEGACY SERIES as a practical and economical option for basic applications in a variety of industries. The LEGACY SERIES can be ordered as PID process controllers or as dedicated over and under-temperature limit controllers."

For more information on Watlow's range of industrial temperature controllers, visit www.watlow.com.

Snickers LiteWork Workwear – making light work of warm weather.

Snickers Workwear = Comfort = Wellbeing and Improved Performance.

The 2021 LITEWork clothing range delivers great thermal comfort in warmer months with light, quick drying fabrics that will keep you cool and comfortable all day.

The new range of 'Rip Stop' shirts are stretchy and breathable, offering UPF50+ sun protection – great for craftsmen who work long hours outdoors. While 37.5© fabric technology in the mid-and base-layer garments have features for efficient ventilation and moisture transport to keep you comfortable all day.

The ergonomic, body-mapping Trousers, Shirts, Shorts, Jackets and Windproofers have all the comfort and functionality of other Snickers Workwear stretch garments delivering extra freedom of movement and improved performance on site.

Just like high performance sportswear, they'll also keep you feeling cool and looking smart whatever you're doing and wherever you are on site this summer.

So, to make sure you get the right protection, flexibility, durability and ventilation, check out the Snickers Workwear LiteWork range for precisely the right garments to fit your workday.

Getting more information on the Snickers Workwear clothing range is easy. You can call the Helpline on 01484 854788; check out www.snickersworkwear.co.uk and download a digital catalogue or email sales@hultaforsgroup.co.uk

Airbench Launches Modrack Modular Accessory System

In response to customer demand AirBench have launched a standardised range of assembly bench options to be fitted to any AirBench model.

The Modrack assembly bench system includes various enclosure systems; supporting power and air supplies; lighting; and tool racking.

Modrack allows for construction of a full assembly area workbench without modification to standard AirBench units. Customers can specify requirements from a range of standardised components. Almost every standard AirBench model can be supplied with the full Modrack range.

AirBench Modrack
www.airbech.com

Keep Your Hands Comfortable and Protected

Work Gloves for Healthy Hands that deliver Precision and Protection

Snickers Workwear now has an extensive collection of Work Glove styles in a wide range of sizes, developed for different workplaces and tasks - designed for dexterity, durability, comfort and precision.

With advanced features and material combinations, there's something to suit a wide variety of trades, and workplaces, weather conditions and hazardous environments.

Added to which the advanced ergonomic designs ensure strong, secure grips while sophisticated patterns, vents and ribs combined with durable materials deliver cut-protection, ventilation, waterproofing and insulation.

What's more, for specialist use where health and safety standards are key requirements, the Gloves are EN certified for performance and protection in hazardous and foul weather environments.

Getting more information on the Snickers Workwear Gloves Range is easy. You can call the Helpline on 01484 854788; check out https://www.snickersworkwear.co.uk/products/109 and download a digital catalogue or email sales@hultaforsgroup.co.uk

Enerpac Announces 100-Ton Capacity Sync Grip Puller for Shaft Bearings and Gears Removal

Enerpac announces a new 100-ton capacity hydraulic Sync Grip Puller for the safe and controlled removal of bearings, bushing, gears and pins from shafts during vehicle and machinery maintenance.

As with all pullers in the Sync Grip line, the new 100-Ton SGH100 model features simple, synchronous movement. The sync grip mechanism synchronises movement of all jaws for simultaneous engagement, enhancing the operator's control over the tool and simplifying set-up. Hydraulic puller jaws fit around the part to be removed, while the spindle applies up to 100 tons of force to remove it. Hydraulically applied pulling force increases pulling capacity and reduces operator fatigue, enabling quicker and easier operation.

The largest in the Enerpac Sync Grip Puller series, the SGH100 100-Ton puller eliminates the need to cut, heat, or torch components during removal from shafts. The puller removes parts without subjecting them to open flame, which could damage parts or injure the operator. When it comes to cost-effectiveness, the puller provides 100 tons of pulling force at a fraction of the price compared to alternative options.

The Enerpac SGH100 puller's synchronous feature makes positioning the puller simple and helps prevent misalignment. Threaded spindle and jaw indexes provide adjustable reach for applications including pulling, pushing and dismounting gears, bearings, bushings, and more.

To learn more about the Enerpac Sync Grip Puller series, visit www.enerpac.com

Norton blazes a trail with new BlazeX fibre discs for expert metal grinding performance

As the first quarter of the year witnessed a leap towards recovery for UK production, manufacturing and construction markets , abrasives specialist Norton is launching its next generation of fibre discs, the BlazeX.

With experts labelling this new line of discs a trail-blazer in maintenance and repair operations, the BlazeX speeds up grinding time and reduces overall abrasives costs for metal fabricators.

Set to become a popular new addition to an already established portfolio, the BlazeX delivers up to 50% higher cut rates on carbon steel when compared to its counterparts, and is available in a range of diameters and grits to suit all grinding needs.

Ideal on a wide range of both hard and soft metals, including carbon and construction steel, the BlazeX offers enhanced operator control in stock removal processes such as metal preparation, weld grinding, chamfering and edge bevelling.

The self-sharpening ceramic grains on each disc – combined with a durable fibre backing – make effortless work of tough jobs, removing metal quickly and accurately. Operators will notice a smoother and more controlled process, resulting in less vibration through the machinery for safer and more precise grinding.

These factors ensure a job can be completed quickly, smoothly and concisely for a longer product life with fewer disc changeovers – resulting in less labour time and overall cost savings.

Howard Prince, Technical Support Manager at Saint-Gobain Abrasives, comments: “We’re thrilled to be able to support fabricators with this release of the BlazeX range. In recent years, the Norton Blaze product range, with its distinctive orange colour, has become synonymous with superior quality and performance; and this addition is no exception.

“Brand new engraving technology allows fabricators to easily identify which Norton product is the best for the job, with the recommended metal stated on the backing of each disc.”

For more information on the Norton BlazeX or Blaze portfolio, visit www.nortonabrasives.com.

BCN3D Tackles Filament Degradation With Groundbreaking New Solution

Storing 3D printing filaments has never been so easy, thanks to the new Smart Cabinet from BCN3D – a world leading developer and manufacturer of integrated 3D desktop solutions.

A revolutionary new solution that has been developed to preserve filament printability, extend its shelf life, reduce aesthetic defects and avoid costly reprints, the BCN3D Smart Cabinet maintains a constant dry environment around stored spools of filament to protect them from sudden external changes.

Bringing a step-change in 3D printing, the Smart Cabinet overcomes the common problem of filament degradation due to humidity, whilst its uninterruptable power supply protects work and minimises the risk of losing a print job because of power outages – all in one easy to use, portable unit.

With a growing number of manufacturers and engineers across many sectors now using 3D printing to make parts or create prototypes, this groundbreaking new development will help them save time and money and enhance the quality of the finished product.

The first machine of its kind to combine a drying unit and a workbench to conveniently store the printer, the Smart Cabinet is a unique alternative to other drying methods that can often damage and degrade 3D printing filaments, such as PA, TPU, PVA, PLA, BVOH, PET-G and ABS. It safeguards the filaments by keeping them fully enclosed and at an optimum level of humidity to greatly reduce the chances of print failure due to excessive water content. With PA, for instance, some mechanical properties improve by 20% with the use of the Smart Cabinet.

Intelligent, reliable and versatile, the BCN3D Smart Cabinet uses smart drying technology to ensure that filaments are consistently kept at optimal humidity levels, guaranteeing the best results in every print job and protecting against print failure and nozzle clogging.

With the new product introductions, in addition to recent investment in the business, BCN3D unlocks a new era in its growth and demonstrates its commitment to providing an innovative and expansive product portfolio, cementing its position as a major player in 3D printing.

The BCN3D Smart Cabinet works on the absorption dryer method, alternating between drying cycles and regeneration cycles to maintain a constant dry environment around the stored spools and protect them from sudden external changes. It controls relative humidity inside the air-tight container through a desiccant - in this case, alumina-based pellets – which are open to the dehumidifying environment.

By isolating the absorption material from the heating chamber and increasing its temperature, the absorbed humidity is released outside of the chamber and the material is regenerated. After the purge, the desiccant has been refreshed and is ready to collect more moisture. The air-tight container and cyclical internal ventilation through the fan, heat, and valves, means there is no user interaction required.

This process effectively keeps the filament dry and in optimal condition for its use and means that there is never a need to change the desiccant.

Eric Pallarés, chief technical officer at BCN3D, says: “To achieve fine, repeatable parts, we need to control the whole printing process, so materials need to be in optimal condition. All materials are sensitive to humidity to a certain degree, but some of them, such as PA, TPU, or BVOH, are particularly affected. For example, in just a few hours on a humid day, a spool of PA can uptake an amount of water that will affect the finished print.

“When customers waste time and money on failed or defective PA print jobs, it’s not down to the printer or the profiles, it’s because of the degradation of the materials. So, to really unlock the potential of additive manufacturing, with technical materials beyond PLA, we needed a solution just like the Smart Cabinet.

“Furthermore, an increase in 3D printer usage means that printing times also extend. In industrial or lab contexts, where power outages or micro-cuts are common, the Smart Cabinet can help to reduce waste and improve efficiency.”

The Smart Cabinet is compatible with the Epsilon W50, the Epsilon W27 and the Sigma D25 3D printers.

Developed to boost efficiency and minimise the impact of downtime, the Smart Cabinet has an Uninterruptable Power Supply (UPS) to protect against power outages that could ruin hours of printing and cost money.

The Smart Cabinet is available in the UK through BCN3D’s UK distributor – 3DGBIRE from today.

For more information, please visit www.bcn3d.com.

Ultimo Software Solutions enters the Nordic market to help local businesses optimise their assets

Michael Ries, former CEO of API PRO/Optiware joins Ultimo as Channel expert to develop a Nordic partner network

Enterprise Asset Management (EAM) software company Ultimo extends operation to the Nordic countries by onboarding new Channel partners in Denmark, Sweden, Finland and Norway. Ultimo's cloud platform helps customers across sectors increase asset availability and optimise productivity and safety. By developing a local Channel, Nordic customers will benefit from a world-class EAM system, combined with extensive local service and optimal commitment.

Ultimo has more than 2,000 customers in the manufacturing, infrastructure, utilities, healthcare and logistics verticals using its platform. In the Nordic market, companies like Elopak, Interxion and BEWiSynbra RAW Oy have already chosen Ultimo as their EAM platform, joining a rapidly increasing number of customers in countries including the Netherlands, Belgium, Germany, Switzerland and the UK.

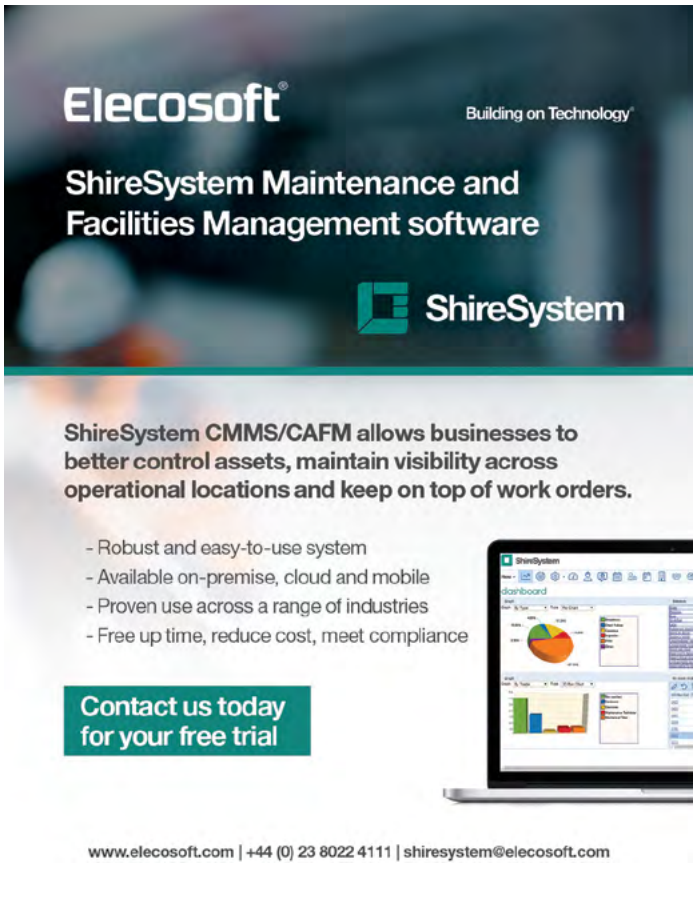
In line with its international growth ambitions, Ultimo launched an international partner strategy in 2020. Now, the company has engaged Michael Ries, former CEO of industry peer API PRO/ Optiware (now Aptean), to execute and lead the Channel Sales in the Nordic region. Michael will focus on the recruitment and onboarding of new Ultimo resellers and implementation partners.

Marcel Leeflang, Global Head of Channel Sales at Ultimo, commented: "We are currently focussing on expanding our partner Channel in Western Europe. This step is a great example of how we are further extending our foothold. Our Nordics Team brings local knowledge and extensive experience in asset and maintenance process optimisation to the table. This experience is vital for realising successful customer projects. I can't wait to introduce our programme to potential partners in the Nordic countries and grow our businesses together in a flexible and hassle-free partnership. With the experience and track record that Michael Ries has in the field of EAM and industry 4.0 business, I'm looking forward to a successful future."

Michael Ries, Director Nordic Channel Partners, said about joining Ultimo: "I have been working in the EAM business for over 20 years, so it is natural for me to re-enter the sector and make use of my experience and network. This, together with Ultimo's strategic decision to enter the Nordic market, makes our cooperation a perfect match. Ultimo is the largest dedicated European EAM software supplier in the market and I believe it is in a good position to expand its business into the Nordic countries. Ultimo has the right profile to become the preferred EAM supplier and partner in the manufacturing and logistics industries in this region."

For more information visit:

www.ultimo.com



AgilityAuto CMMS: The automated workflow management solution

Keeping Fiona Stanley Hospital running smoothly and on time.

AgilityAuto (CMMS) is designed to support operational requirements, and, along with Serco and BT, AgilityAuto has delivered a fully integrated workflow management solution which supports the delivery of patient care in a highly complex environment.

Fiona Stanley Hospital is a brand new state-of-the-art hospital One of the hospital's main principles is operational efficiency; in line with this AgilityAuto is being used to centrally co-ordinate its smooth running and management. There are 10 other systems operating in real time with AgilityAuto; either feeding information in, such as the hospital staff skills and training records and the RTLS (Real Time Location Service) or creating service requests such as the I.T helpdesk and telephone system. When the hospital is fully operational, it is forecast that AgilityAuto will manage over 80,000 service requests per month, 60,000 of which will then create multiple tasks.

AgilityAuto has been specifically configured to allow service requests to be raised quickly and easily directly in AgilityAuto through a variety of different methods including the InTouch touchscreen system, self-service points around the hospital, hospital reception and call-centre helpdesk. As there are so many possible sources, it is key that all requests are entered consistently and as quickly as possible into AgilityAuto to help ensure performance targets and SLAs (service level agreements) are achieved.

All service requests are quickly and thoroughly triaged in AgilityAuto using a simple series of questions which cover over 8000 options. This process ascertains the request's priority, the required resources to complete it and the steps needed to carry it out to ensure no time or other resource is wasted. These requests can then be auto-deployed to a member of staff on a mobile device, assigned to an automated guided vehicle (AGV) or sent to another system for processing. Through the RTLS, AgilityAuto identifies the best placed, available resource and the service request is then automatically deployed to them, streamlining the process and helping to achieve performance targets.

AgilityAuto has been configured to recognise the severity of certain service requests and put into place the best course of action. learn more at www.ssginsight.com

The Automation Revolution: How Machines are Improving Supermarket Maintenance

From keeping supermarket fridges and freezers in optimum working order to improving the quality and safety of the food we buy, data-enabled automation of critical infrastructure has been improving retail experience for years. How exactly? Well, it's not as simple as it sounds.

The Bigger Picture

Automation strategies are enabled through best-in-class IoT technology with the capability to integrate to machines and gather the large amounts of data often trapped within a retailer's equipment. Once gathered, these advanced solutions can make sense of this data in real-time. Machine health and performance can be understood and further contextualised against historical data, commissioning protocols and third-party applications – such as work order systems.

This is no mean feat in a sector built upon complex and disparate infrastructure. Agnostic solutions that enable connectivity to any asset, regardless of type, manufacturer or age, are providing the platform for change and enabling food retailers to unlock visibility and control over existing infrastructure to begin informed shifts in their approach to maintenance.

By releasing unprecedented levels of visibility, alongside third-party integration and deep contextualisation, smart automation strategies can be applied across processes, operations and machines to drive maximum efficiency and effectiveness. In maintenance, this new approach has a twofold effect; reducing the overall requirement for maintenance callouts, and optimising the overall effectiveness of the maintenance that is required.

Reducing the Requirement

Perhaps the most powerful benefit to maintenance comes from the ability to automatically optimise the performance of critical machines. By ensuring equipment is consistently running at optimum levels, the longevity of an asset can be prolonged, and the risk of failure or requirement for repair reduced. For example, a refrigerators mechanical elements can be monitored constantly to ensure continual machine health and performance.

Adjustments and alignments can then be enacted automatically by the system in real-time to ensure a continuously optimised machine, without the requirement for human intervention. Automated 'recall' strategies are also being leveraged across the industry to drive down unnecessary maintenance. The system automatically identifies when issues are recurring or related and will nest them under one job. This provides the assigned engineer with a full, contextualised picture of the faults occurring in order to enable the best chance for root cause identification and resolution.

Optimising Engineering

Arming the engineers with more information also plays a key role in driving improved maintenance effectiveness. Prior to IoT technology adoption, engineers would visit a site with limited insights into the health and behaviour of machines, both on a granular and estate-wide level. Now however, asset insights can be automatically collated, translated and provided to the assigned engineer once a fault has been detected. This provides a real-time, digitalised view of the machine, as well as asset history, which allows for intermittent issues, new faults, parts required or fixes necessary to be easily identified without multiple call-outs or delays.

Additionally, the assignment of engineers to jobs can be automated, and by leveraging data such as skillset, parts and tools available and engineer location, maintenance teams can further streamline operations and ensure a first-time-fix.

Solutions are also able to automatically assign assets that are alerting with signs of failure with predefined severity levels. This ensures that the most harmful issues are addressed first by engineering teams and can protect from damaged equipment, wasted energy from under performing assets or even loss of stock.

By utilising this newly obtained and contextualised data, retailers and engineers have access to estate-wide asset-level insights. Replacing inefficient processes, streamlining workflows and enabling an informed workforce are just some of the ways automation is increasing efficiency and changing retail maintenance for the better.

Written By Lee Harpham, Refrigeration & Energy Solutions Manager at IMS Evolve

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More Hart doors for Erwin Hymer

Hart Doors has recently completed a contract for Erwin Hymer's Consett, Co Durham, plant where a range of Hart's industrial doors from roller shutters to Speedor Storms, Speedor Minis and a combination of a Speedor Storm and roller shutter were installed.

Gordon Kipling, Hart's Northern Sales Manager comments that Hart has been involved with Eldiss caravans for many years prior to its acquisition by Erwin Hymer, one of Europe's largest manufacturers of motor homes and caravans.

"We are fortunate that they are going through a huge refurbishment, re-organisation and re-build project and have chosen Hart to be a part of it," says Mr Kipling. "The Storms were recently installed in a temporary warehouse and we have also installed a range of Hart's doors in other parts of the plant."

Mr Kipling adds: "This is a great demonstration of how Hart Doors and its excellent and reliable high-quality products work hand in hand with customers to provide a solution to issues they may face.

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The role of heating technology in medical equipment

There are around 10,000 different medical devices on the market today. Each individual piece of equipment must be manufactured to the highest standards to ensure accurate, efficient and safe results. Here, Andy Selvy, Chief System Designer at industrial technology company Watlow, discusses medical device trends and how heating technology plays a vital role in the function of medical equipment.

The term medical device refers to any instrument, apparatus or appliance involved in the diagnosis, treatment or improvement of life. Each component used to create the device must be built with patient safety, reliability and effectiveness in mind. What's lesser known, is the role heating technology plays in some of the most commonly used forms of medical device.

Device trends

Medical device manufacturing is a burgeoning market. For example, the UK, which is home to over 2,000 device manufacturing companies, is the third largest medical device market in Europe, behind France and Germany, and is expected to be worth over £5 billion by 2025.

Currently, there are several market trends that create unique thermal challenges. These include the miniaturization of devices, increased throughput for diagnostic equipment and a shift towards point-of-care diagnostics focused on preventative care and faster medical decisions. From an original equipment manufacturer (OEM) perspective, they must also contend with increased globalization efforts such as leveraging a single device in all regions of the world.

This shift creates several manufacturing challenges. For instance, producers of medical devices must now consider a greater number of voltage requirements and increasingly stringent safety standards. For those focusing on making devices smaller, there's the associated challenges of still delivering high performance and ensuring careful, considered placement of each component to maximize space.

Heating tech in medical devices

From anaesthesia delivery systems and respiratory therapy devices, such as ventilators, to blood and intravenous (IV) fluid warmers and transfusion equipment, heating plays a crucial function in many medical devices. Without heaters, humidity could not be added to respiratory equipment, instruments could not be sterilised and fluids that help to stabilise body temperature post operation, could not be injected into the body.

When selecting an industrial heating equipment manufacturer to support with a medical device project, it's important to consider a company's portfolio of thermal solutions for the industry. Watlow, which has manufactured heating technology such as controllers, heaters and sensors, since 1922, is accomplished in providing OEMs with solutions that enable exceptional thermal control, meeting the most demanding product specifications like combining miniaturisation and high performance.

For instance, its ULTRAMIC® advanced ceramic heater is ideal for realizing the minimization trend. Providing thermal performance up to 155 watts per square centimeter (cm) in a package size as small as eight millimeters (mm) squared, and with onboard sensing for closed loop temperature control, the ULTRAMIC saves space, reduces the machine's overall footprint and simplifies the manufacturing and assembly process.

In addition, Watlow's small industrial electric heaters are engineered and manufactured with patient safety in mind and comply with medical equipment, mechanical and electrical isolation

requirements and commonly include on-board monitors and safety limit controllers.

There in times of crisis

Several Watlow products have been used in medical devices during the COVID-19 pandemic. For instance, one medical device manufacturer is using our ULTRAMIC advanced ceramic heaters in a product that treats COVID-19 patients, which has proven effective in preventing people from requiring ventilators.

Elsewhere, our foam-in-place silicone rubber heaters have been used to help with COVID-19 vaccine testing. Additionally, Watlow's EZ-ZONE panel mount (PM) controllers are being used by another company to control air flow and negative vacuum conditions in makeshift hospital tent systems.

Heating technology acts behind the scenes to ensure the critical function of various medical devices. When developing new technology, OEMs should consider partnering with a heating expert that understands the regulatory environment they must operate in and can work alongside them to create life-saving innovations.

For more information about Watlow's solutions for medical applications,visit www.watlow.com.

Enerpac Cuts the Cord with Portable Cordless Bar Cutter

Cut through #6 rebar in 5 seconds

Enerpac announces the highly portable EBC-Series Cordless Bar Cutter for quickly and easily slicing through up to number 6 rebar or similar metal bar up to 0.79" (20mm) in diameter within seconds. The new battery-powered model is designed for those who work in environments without access to on-site power. It is a convenient, and safe solution where external power is not available or where spark risk is a concern.

Portable, self-contained, and convenient

Whether cutting rebar for residential or commercial construction or cutting steel and aluminium bars (round, hexagonal, or square) in industrial applications, the cordless technology in the Enerpac Cordless Bar Cutter provides complete freedom of movement. Because it has self-contained power, no external power source is required. This makes the tool completely portable. Another convenient feature on the cutter is a 360-degree rotating head that allows the tool to either be positioned flat on a work surface, where metal bar can be fed through the blades from a comfortable working position, or rotated in any orientation needed to finish hard-to-reach cuts on the jobsite.

Another way Enerpac makes the tool convenient is by supplying it with two batteries and a charger so the operator can keep working when the first battery needs to be charged.

Precise Speed

The cutter offers a controlled, shear cut that is repeatable—unlike rotating cuts that tend to walk or slide on the bar—providing a uniform precise cut every time. Able to quickly cut through up to #6 rebar in 5 seconds, the Enerpac EBC-Series Cordless Bar Cutter has highly durable blades for thousands of cuts, with up to 125 cuts on a single charge.

Minimises Safety Risks

The new Enerpac Cordless Bar Cutter is designed to minimise safety risks. Gas saws, angle grinders and cut-off tools are among the most popular solutions for cutting metal bar today, however, these tools are also the leading causes of injuries to an operator's hand, arm or face. With the cordless bar cutter, the bar is held in place behind a protective guard, while a Trigger Guard helps prevent accidental activation. While the cutter's controlled cutting action ensures there are no shooting sparks, exploding blades or exposure to high RPM cut-off wheels.

To learn more about the Enerpac EBC-Series Cordless Bar Cutter, visit www.enerpac.com

Enerpac Introduces Next Evolution of RC-Series – The RC-Trio Hydraulic Cylinders

Enerpac introduces the next evolution of the legendary Enerpac RC-Series hydraulic cylinders. The new RC-Trio is as versatile as ever. It features a new Trio bearing system for enhanced durability and a hybrid spring-return system for faster retraction and even greater productivity.

Durability

The driving force of the new Enerpac cylinder range, the RC-Trio features a new Trio bearing system. The system includes up to four high-performance wear bands, offering increased resistance to damage, reduced bearing load, and longer cylinder lifespan. The hardened composite material of these bands increases bearing surface area for greater side load resistance, significantly improving cylinder life. Durability is also on display in new high-performance polyethylene seals that last longer than ever.

Another part of the Trio bearing system is the Trio stop ring, which includes an additional wear band to absorb greater side load. The stop ring can take full cylinder extension force and, depending upon cylinder size, is manufactured in Nitrided Steel or High-Resistance Bronze, for increased durability. It also features a durable wiper to help prevent contamination from entering the cylinder during retract cycles.

Productivity

When it comes to productivity, the RC-Trio features a new Trio spring system designed to reduce retraction time. This pre-tensioned return spring system provides up to 3X faster retraction (available on 50-, 75-, and 100-ton models). It uses high-strength steel wire to improve spring life. The spring retention design improves serviceability, while allowing higher pre-load during assembly. Additionally, the spring is easily removed without special tools.

Versatility

The RC-Trio is a general-purpose cylinder available in 41 models and is designed for use in all positions. Versatile features include Collar and plunger threads and base mounting holes that enable easy fixturing (on most models), new base holes on 30- and 75-ton models, hardened plunger saddle that protects plunger end during all lifting operations, and optional tilt and smooth saddles as accessories. Plus, the RC-Trio maintains the same dimensions and connection threads, providing full compatibility with existing RC-Series units in the field.

To learn more about the latest Enerpac tools, visit www.enerpac.com

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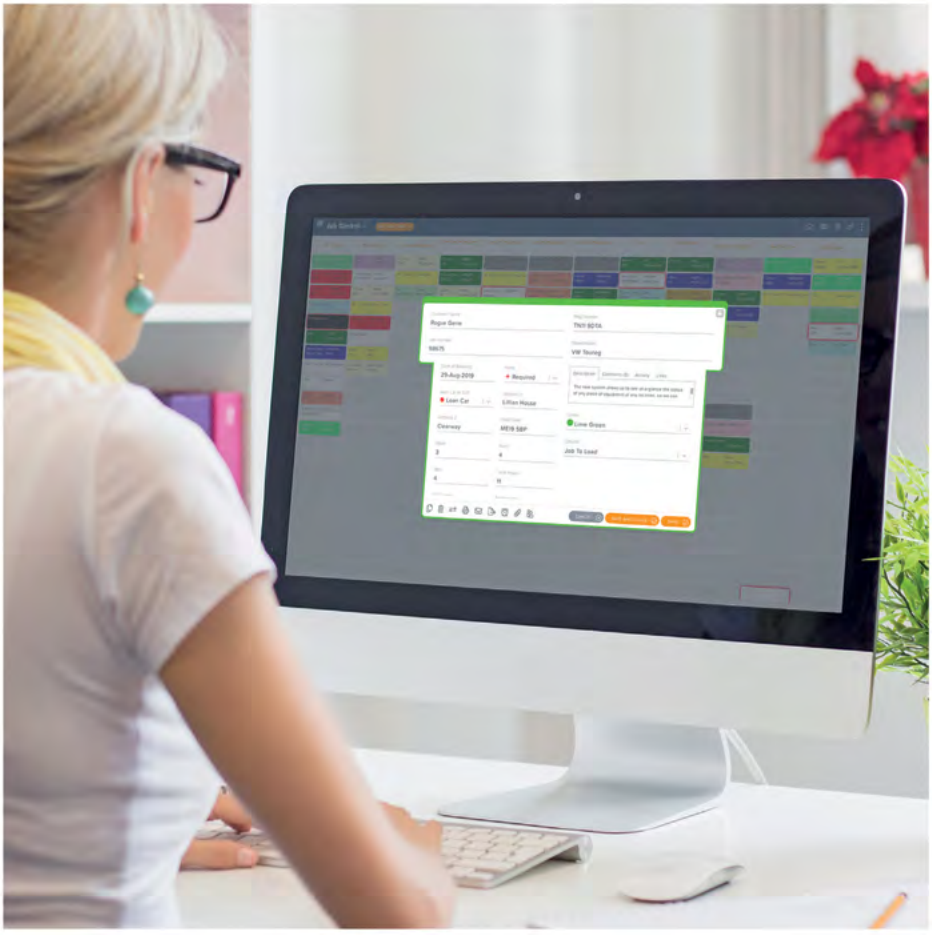

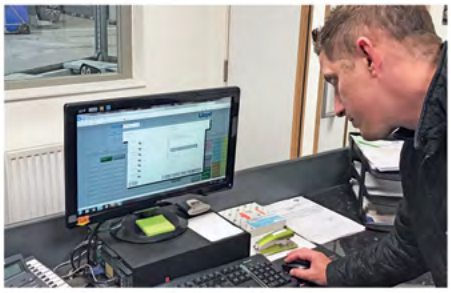

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