

EMS

ENGINEERING MAINTENANCE SOLUTIONS

The International Magazine For Maintenance & Engineering Professionals

Oct/Nov 2017

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Respirable Dust Is The Invisible Killer No-One Is Talking About

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Product Spotlight

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Award Winning Pump!

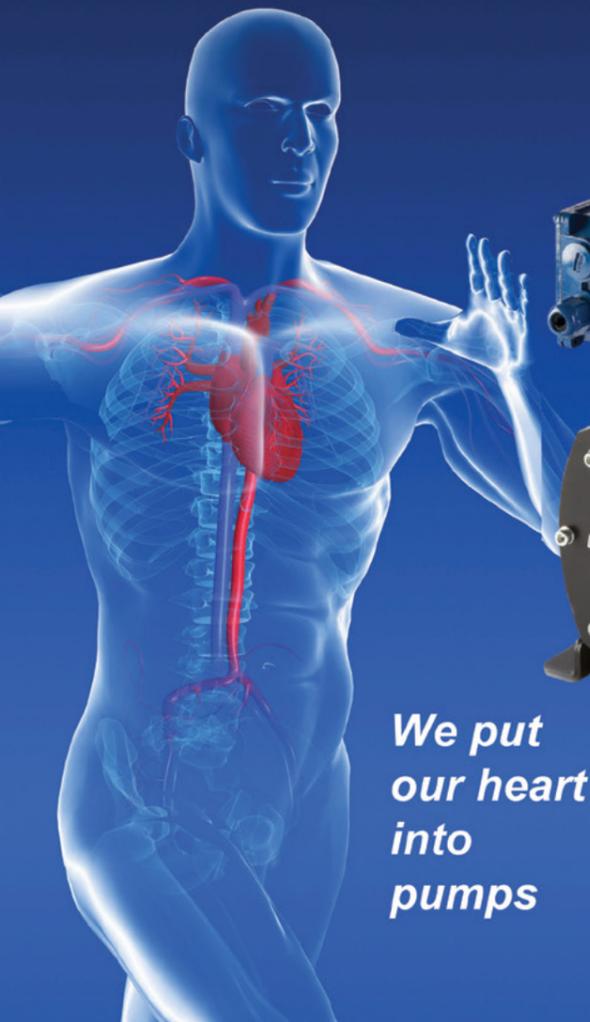
High Pressure Low Volume Dosing Pumps

The Verderflex Dura is the first real advance in hose pump technology since the high pressure hose. The Verderflex Dura 5 and Dura 7 combine a close coupled pump's compactness with traditional long coupled pump benefits in superior High Pressure Low Volume dosing pumps. Unlike traditional high shear pumps that reduce flocculent particle sizes and result in both increased chemical use and higher operating costs, the Verderflex Dura 5 and Dura 7's bring gentle pumping to sub-litre per hour flow rates. Off-Gassing liquids, such as Hypo, often cause traditional pumps to vapour lock, however, the Verderflex Dura 5 and Dura 7 readily pumps these liquids with ease.

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Contacts

Publisher
Michael Dominguez

Advertising
Steve Pheasant
stevep@engineeringmaintenance.info

Production
Tom Britten

Email
Info@engineeringmaintenance.info

Website
www.engineeringmaintenance.info

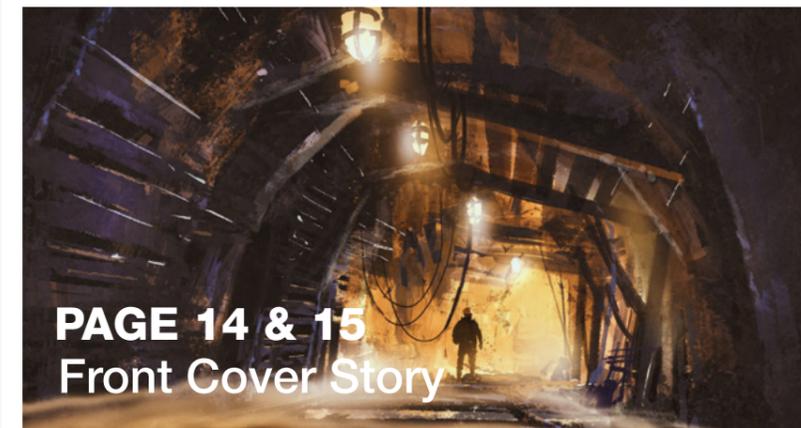
Phone
Tel: +44(0)203 575 1170



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GET INTO THE ROUTINE!

A WORD FROM THE PUBLISHER

The latest edition of EMS magazine contains extra emphasis on the tools, techniques and products used to ensure that your pumps are running to maximum performance.

In order to maximize the life of your pump, it is crucial to perform the proper periodic maintenance at designated intervals.

The key to a good pump maintenance program is preventive maintenance. This includes adjusting and tuning up equipment and detecting and correcting minor problems before they become major problems. Routine pump maintenance not only maximizes a pump's lifespan, it saves money with increased pump availability, improved productivity, and decreased repair costs.

Limited, preventive maintenance checks should be conducted after every eight hours of operation. Full service maintenance is recommended after every 250 hours of operation. Be sure to record all maintenance activities for future reference. And always refer to the pump manufacturer and the engine manufacturer maintenance manuals before performing maintenance or repairs to the pump.

Safety is first. Always shut down the unit and allow it to cool before performing any maintenance.

Routine maintenance after every eight hours of operation:

- For engine driven pumps, engine fluid levels and conditions should be checked after every eight hours of operation. In excessively cold or excessively hot weather, oil and coolant specifications may need adjusted. Be sure to refer to the engine manufacturer's recommendations.

- Next, check the fuel system. Open the filler neck to check the fuel level or, if equipped, observe the fuel gauge, but make sure that the unit is level. Inspect all fuel lines, clamps, and connections for cracks, leaks, breaks or dark lines.

- If the pump is equipped with a water-cooled engine, the engine coolant level should be at or just below the filler neck in the radiator and the condition of fluid must be clean and free of oil. Be aware that certain types of coolant do not mix. Color is normally a good indicator of the coolant type, but not an absolute differentiator. Check the MSDS to be sure.

- Continuing the eight-hour maintenance, the engine oil should be clean and the level should be within the operating range on the dipstick. Verify that the radiator core is clean and free of any debris or residue. If applicable, check the air filter and air-restriction gauge and clean the dust port.

- If the pump is equipped with an air cooled engine, inspect the oil cooler to be sure that the cooling fins are clean and free of debris.

Routine maintenance after every 250 hours of operation includes several advanced assessments, replacements, and lubrications:

- On the diesel engine, drain the engine oil. Be sure to use the engine manufacturer's recommend oil type and dispose of used oil in a

manner that is compatible with the environment. Replace the oil filter.

- Drain and replace the fuel filter. If applicable, check the air filter and air-restriction gauge and clean the dust port. Replace the engine inlet air filter.

- If equipped with a compressor-assisted priming system that is not integral to the engine, replace the inlet air filter on the air compressor. This is not required if the compressor is integral to the engine.

- Continuing the 250-hour maintenance, visually inspect the overall condition of the pump set and note any items for further inspection. Check for signs of wear and leaking such as spots on the block, pump, priming system or the frame.

- Check all of the pump's fittings, nuts, bolts and flanges, including mounting feet, for tightness. Inspect all the wiring, battery cables, and the fluid level in the battery. Use caution and wear appropriate eye and skin protection when opening battery ports.

- Check the fan, belts, hoses, guards and tensioner. Belt guards must be in place and free of cracks or damage. Engine belts must not be cracked, frayed or torn. If the unit is equipped with one, be sure the tensioner is operational and has restricted movement.

- Examine the radiator hoses and clamps; check for tightness or cracking, leaks or damage.

- Also, inspect the pump's suction and discharge hose connections and clamps to make sure they are not loose or damaged.

- Locate points that need to be greased or oiled.

These areas are painted in red and outlined in the operation and maintenance manual. Do not grease the mechanical seal while the unit is running. And only use two pumps of a hand-operated grease gun to grease the mechanical seal.

- Furthermore, be sure to check the discharge priming valve. Gaskets and O-rings should be smooth to the touch upon inspection.

While the pump is running, monitor the following:

- Heat
- Flow
- Noise
- Speed
- Strain
- Pressure
- Vibration
- Liquid level
- Power Consumption
- Product contamination
- Leakage and Emissions

Use of the pump in dusty, dirty, wet or otherwise adverse conditions may require more frequent inspection and maintenance.

Top Tips for Pump Maintenance

1. Safety First
2. Prioritize maintenance
3. Perform pre-shift inspections
4. Use maintenance logs
5. Audits those maintenance logs
6. Adhere to suggested maintenance intervals
7. Match the application to the use
8. Plan to avoid emergency repairs
9. Perform good housekeeping
10. Fix the root cause of a problem, not the symptom
11. Keep common parts in stock
12. Use only genuine OEM parts

13. Read and make copies of the manufacturer's manual

14. Commit to an employee training program or outsource to pump professionals

15. Operate the pump within its designed limitations

The quality and timeliness of pump maintenance and repairs can make a real impact on the bottom line. Having an outside trained service technician perform these tasks may increase the initial cost of the service when compared to using staff, but a trained technician will do the job correctly and identify components inclined to fail — which avoids downtime

of pumps, including competitor's pumps, is ideal for one stop shop time savings.

Utilizing a factory-owned full-service pump service provider provides multiple benefits:

- Rental pumps are often available to keep the project on task in the unfortunate circumstances of a major repair.
- Parts are usually stocked and readily available for most brands, makes and models. Automatic scheduling is available for pump preventative maintenance.

“Limited, preventive maintenance checks should be conducted after every eight hours of operation. Full service maintenance is recommended after every 250 hours of operation.”

and damage in the long run. Thus, reducing repair costs throughout the life of the pump and resulting in savings much more than the initial cost of a service call.

A good pump maintenance provider should offer 24-hour emergency service to provide on-site repairs or transportation to a full-service facility to enable quick repairs that minimize downtime and get you back to business faster. Look for a service company that provides their pump technicians with continuous product and repair training to assure they stay up-to-date on the constant evolution of pump and engine technologies and practices. A provider who is able to maintain and repair many different types and brands

- In-house full repair capabilities are assured to be up-to-date and efficient for quality repair turnaround.

When choosing a maintenance and service provider, you should expect quality, value and timeliness. Qualified pump technicians assure your investment is well maintained and repaired. Utilizing factory trained pump technicians for scheduled and emergency field repairs ensures that every service is done right the first time and that you get answers to questions and solutions to challenges that can help you avoid future failures down the road.



Michael Dominguez, Publisher.

Why Reliability Improvement Projects Often Fail

Torbjörn Idhammar is the president of IDCON INC in Raleigh NC, USA, a reliability and maintenance training and consulting company to manufacturing and process Industry worldwide since 1972.

Unfortunately, I am no longer surprised to see plant reliability and maintenance improvement initiatives abandoned before achieving substantial results. Many organizations we visit recognize the importance of improved reliability and maintenance, but very few have the endurance and focus to achieve long-term results.

Reliability and maintenance improvements are one of the last major improvements opportunities left in the industry. Everyone with access to capital can buy the same equipment and technology, but how productive your plant is will largely depend on the reliability of your process and your equipment. If your equipment runs, you turn out product. If it does not run, employees work harder, your costs are higher, but you are not at peak production. So why does top management not reinforce that even the most basic maintenance practices are better executed over long periods of time, which in turn yields financial results? Perhaps it is lack of patience and reinforcement.

As an example: I recently received a call from a client at a chemical plant in Houston, Texas that IDCON worked with 2003-04. Let's call him John. The conversation went something like this:

"Do you remember all the hard work we did in 2003?" John said. "We implemented inspection routes, really good planning with a library of standard job plans, we held weekly prioritization meetings and we even analyzed most breakdowns using your 'How-Can' method for root cause?"

"Of course, I was there with you," I responded. "It's all gone," he said.

"Why?"

John explained that they had changed management, and he had no support from corporate. The new plant manager didn't believe in planners.

"And there you have it," he said. "You need to come visit. Time to start over."

The conversation went on, but key is that it only took a new plant manager about 18 months to ruin 11 years of internal improvement work and two years of actively working with a consultant firm (IDCON) implementing a new plan. On a somewhat sad note, this is how maintenance management businesses like ours continue to thrive. If companies stuck with a true reliability course of action, we wouldn't be needed. The lack of corporate beliefs regarding reliability is about as close to a root-cause as we can get in identifying unsustainable initiatives.

A comparison between Reliability and Safety

Let's compare the outcomes of safety improvements with reliability and maintenance improvements: In 1994 the average overall incident rate was 8.7. (Incidents per 200,000 working hours.) Today many plants we work with have an incident rate of below 1. In 23 years this industry reduced overall safety incident rates by about 87 percent.

A study by the University of Tennessee shows that organizations with a high level of reactive maintenance has an OSHA incident rate of 4.36, while top performers with much less reactive maintenance come in at 0.11.

Imagine the results if there were the same focus on reliability. Could you reduce preventable maintenance work and down time by 80-, 50-, 20 percent? A majority of maintenance work is preventable. It can also be executed in half the time—I have seen it happen. The key to such success is long-term consistent leadership, support and reinforcement. In addition to better maintenance productivity and overall higher production, things would be safer.

The phenomenon of safety success and reliability, "flatline," is recognized by many of us in reliability and maintenance management. This brings us to the first point as to why reliability improvement projects are seldom sustainable. The lack of consistency and purpose when it comes to reliability and maintenance, not only for plants but also from a corporate perspective.

Training and Implementation

The fascinating findings illustrated in the graph below are from the American Society for Training and Development. It illustrates what happens if training is not followed by immediate practice and reinforcement. The findings show that 87 percent of what you learn is lost within 30 days—without follow-up. The graph also shows clearly why so many reliability and maintenance improvement initiatives deliver good results, but only about 50 percent of the overall improvement potential.

Training is very good for awareness and understanding, it is a starting point for improvement. However, training without reinforcement is likely to fail. Both reliability and maintenance improvements are behavior driven. If you look at successful safety programs versus unsuccessful ones you will quickly notice that the successful ones focus on individual behavior. The same goes for reliability improvements. At the end of the day, it comes down to the behavior of humankind. For example, you may have documented a perfect inspection route, implemented good KPI's, trained the worker, etcetera, but if the individual executing the inspection routes doesn't perform well, a lot of your work is wasted.

It may help to think of a situation where we try to lose weight or become healthier. You can probably get information about what to do quite easily. Most of us need to eat less sugar, less saturated fat, less carbs, more fish, more veggies, and we typically need to exercise more. Overall, these facts apply to most of us. So, the question is, why don't we actually do it? It is behavior! To successfully becoming healthier, most of us need a good coach or manager that follows-up and pushes us. That is why every running team, hockey franchise, and boxing club employs coaches.

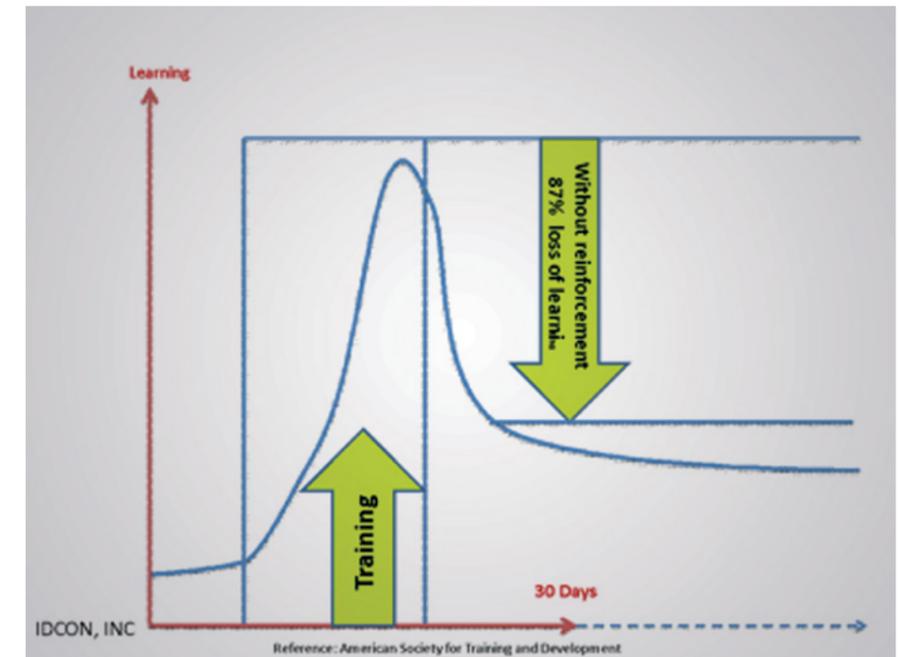
Neglecting reliability behaviors and individual performance management is another reason why so many improvement projects fail.

What can organizations do to improve?

I believe the lack of consistency around reliability and maintenance from a corporate level and neglecting individual follow-up in implementation support, performance management, and coaching are major factors that need to be considered in improving today's industry.

Ideas on Improving the Consistency from Corporate around Reliability

One suggested first step is to create basic reliability



beliefs for the corporation. They have to be practical and easy to understand. They also have to be used as a guide when hiring new personnel, when financial decisions are made and in day-to-day operations.

Focus on what the organization should do, but avoid describing exactly how. For example, a reliability belief could be: "Work orders will be well planned before they are scheduled" or "We will have clean lubricants in our equipment" or "We will follow the designed work management flowchart." Focusing on the result instead of telling the plants exactly how to do it, helps organizations as it avoids getting tangled up in partial goals. It will also encourage taking ownership in designing and executing the process. There may be some corporate standards for doing certain things for the sake of cost efficiency, but reasoning "we have to do it exactly the same way we always have" will yield in no improvements.

The beliefs must be communicated and followed-up on, but most importantly, they have to become a part of the organization. So, when a plant manager, CEO, or COO is hired, they should first sign off on following the company's reliability beliefs. Successful companies have implemented reliability beliefs that include training and communication for everyone, of every position. One plant we work with requires reliability training for all employees when hired—they even recently trained their new president.

Ideas on Improving Follow-up, Coaching and Personal Performance

Establishing one-on-one follow-up is crucial for every successful plant. Some call this performance management, IDCON's consultants

use "RACI follow-up" or "A-R Follow-up", from the Accountable to Responsible relationship in a RACI chart. Document a work process that defines the agreed-upon way to do work in the plant, where it is clearly defined who is responsible for each step. From these work processes we can create job descriptions for each role in the plant. Ask yourself how often each manager follows up, one-on-one, and how well each person performs in the work process. This is not an annual performance review or a salary discussion, but something that needs to happen more often and in alignment with your organization's particular ongoing improvement work. Think of it as a discussion a manager has with his/her subordinate in order to remove roadblocks, and check performance based on the agreed-upon work process.

I know you are thinking that I am about to recommend hiring a consultant in the early stages of an improvement initiative—and you are right. Getting an outsider's expertise can help an organization improve reliability quicker. We have helped hundreds of plants, mines, and mills improve on a much faster track than what can commonly be done internally. Typically, plants need to improve preventive maintenance, planning and scheduling, and spare parts management. But what's really interesting is that most plants know they need to improve in these areas before the consultant ever steps foot inside. So, if we know what it is we need to improve, why haven't we done it already? A consultant can help move things along, infuse new approaches and offer fresh perspectives.

For further information please visit: www.idcon.com

Reactive maintenance causes more safety incidents

	Top 25%	Middle 50%	Bottom 25%
Reactive Maintenance	9%	30%	64%
Osha Recordable Incident Rate. (Per 200,000 Hours)	0.11	1.16	4.36

Reference: 2015 study of over 100 companies by University of Tennessee Reliability and Maintainability Center. (UT-RMC)



Small Companies Must Take Mental Health More Seriously

Professor Dame Carol Black calls SMEs to treat mental health issues as a priority and suggests practical steps they can take to introduce a good mental health culture.



Professor Dame Carol Black calls SMEs to treat mental health issues as a priority and suggests practical steps they can take to introduce a good mental health culture.

Speaking to the British Safety Council, Professor Dame Carol Black, a leading expert and a passionate campaigner promoting good mental health in the workplace, urged SME (small and medium enterprise) owners and managers to get onboard with the mental health agenda.

"One in four employees in the UK have mental health problems. Their symptoms include stress, anxiety and depression, which affect their own performance

and wellbeing, as well as that of other workers. These are the key reasons why SMEs should start treating mental health issues as a priority," says Professor Black. Her practical advice has been recorded by the British Safety Council in a short film, *Mental Health & SMEs*.

"Mental health issues affect small companies to a much greater extent than larger enterprises. Due to their size and fewer resources, SMEs cannot afford to have employees not working to their full capacity," warns Professor Carol Black.

"The signs that the things are not well in a company are: poor productivity and employee engagement, as

well as various symptoms of stress, which express themselves in growing propensity to take sick leave, increased turnover and presentism," she said.

Professor Carol Black suggests practical steps which every company, regardless of their size and budget, can undertake to introduce a culture that promotes good mental health. "You have to train your managers in people management skills and add to this a mental health component. Then they will be able to recognise the signs when an employee becomes less well. This approach should be complemented by training at a peer-to-peer level. Mental health first aid training will enable staff to provide support for their colleagues.

"This approach doesn't cost very much, although it takes time to develop. It will lead to better staff engagement and productivity, benefiting both employees, their companies and the wider society. However, it has to come from the top," concludes Professor Black.

Professor Dame Carol Black will be a keynote speaker at the British Safety Council's Annual Conference 'Health and Safety: preparing for the future' to be held on Wednesday, 4 October 2017 at The King's Fund, London. She will address mental health issues in the workplace, using case studies to demonstrate the simple steps that can be taken to reduce the stigma and support employees.

The film *Mental Health & SMEs* has been produced by the British Safety Council as a part of its special 60th Anniversary Supporter Offer launched in January 2017 for small organisations and charities to help them manage health, safety and environmental risks.

The British Safety Council is addressing the challenges of mental health and, as a founder and supporter of the charity *Mates in Mind*, is focused on improving mental health of construction workers.

For further information please visit: www.britsafe.org

Moog Offers Improved Safety of Its Leading-Edge Wind Turbine Pitch System Technology Certified by TÜV Rheinland to Lower Cost of Energy

Moog (NYSE: MOG.A and MOG.B), a designer and manufacturer of high performance motion control products, solutions, has earned a safety certification from TÜV Rheinland for the new Moog Pitch Servo Drive 3.



Above: Moog Pitch System 3: Axis Box including Pitch Servo Drive 3 and Pitch Capacitor Module.

TÜV Rheinland is a global testing service provider and specialist for functional safety. Moog's new Pitch System 3 is responsible for guaranteeing the safe operation of wind turbines. The feathering safety function supplied by the Moog Pitch System 3 Servo Drive alters a wind turbine's blade pitch at the rotor hub to minimize the torque applied by the wind, avoiding excessive speed of the turbine. As a result, the pitch servo drive is classified as a safety component.

"The safety built into Moog Pitch System 3 helps wind farm operators in three important ways," says Dr. Tobias Theopold, Technology Development Manager Business Unit Wind, for Moog. "The technology avoids hazards from the wind turbine and therefore lowers the insurance fees for a wind farm operators. As the safety related development of Moog Pitch System 3 required an IEC 61508 and 13849 compliant V-model process including intensive failure insertion testing, this also boosts

Safe Feathering Run (SFR), which automatically moves and stops a turbine's blades in the feathering position. Second, Moog included a Safe Stop function called (STOP1) to arrest the motion of an individual blade during manual movement of the blades. The Safe Stop function meets the ISO 13849 standard that addresses the requirements that blades must not perform an unintended move when people are working inside the wind turbine's hub.

"To protect a wind turbine against overvoltage from the grid and lightning strikes, we included a new component called the Moog Pitch Interface Module," adds Theopold. "Our new interface module is a firewall to protect the blades against extreme environmental conditions and so called common cause failures (CCFs). These failures are most critical because they can affect each of the pitch axis and therefore can put turbine safety on risk."

Moog also asked lightning protection specialist DEHN to test Pitch System 3 (including its servo drive and interface module) inside a high voltage lab subjecting the system to multiple lightning strikes reaching more than 260,000 amps. Afterward, the system was still fully operational and performed a Safe Feathering Run.

About Moog

Moog Inc. is a worldwide designer, manufacturer, and integrator of precision control components and systems. Moog Industrial Group designs and manufactures high performance pitch solutions for wind turbines including pitch control systems, slip rings, blade sensing and services for wind turbine manufacturers and wind farm operators. Pitch systems monitors and adjusts the angle of the wind turbine blades and thus acts as a critical safety system protecting the turbine against adverse wind conditions. Moog Industrial Group, with fiscal year 2016 sales of US\$515 million and over 40 locations worldwide, is part of Moog Inc. (NYSE:MOG.A and MOG.B), which has sales of US\$2.41 billion.

For more information, please visit: www.moog.com/wind.

reliability of the overall product, which of course lowers downtime and reduces the Levelized Cost of Energy."

Moog established the benchmark for safety with its previous versions of the Moog Pitch Servo Drive when these were certified by TÜV Rheinland in 2012. With the Moog Pitch Servo Drive 3, Moog has received independent validation that this product will also perform outside the specification at extreme environmental conditions and in cases of unexpected failure.

Along with certifying the safety of its new servo drive, Moog improved the architecture of Pitch System 3 to meet IEC 61508 and ISO 13849, standards governing wind turbine safety. First, Moog's engineers provide a safety function referred to as

HOISTS & CRANES FROM J D NEUHAUS OFFER OUTSTANDING TOTAL COST OF OWNERSHIP

J D Neuhaus (JDN) hoist and crane material handling solutions deliver optimum performance and claim to offer the best Total Cost of Ownership (TCO) in its class.



But what is Total Cost of Ownership (TCO)?

TCO is a measure of the total cost of purchasing and operating a product over its useful life. This calculation is critical to a business because it shows the complete financial impact when deciding on purchasing a piece of equipment. In short, the initial price tag typically does not account for the overall, long-term costs to install, utilise, maintain, upgrade and support the product over its lifetime.

For hoists and cranes, ongoing costs can be largely divided into two categories, direct and indirect costs. While the former include factors such as operating labour, maintenance, utility costs and spare parts, the latter includes unscheduled maintenance and downtime resulting from operational damage to customer products/materials.

With a significant percentage of skilled JDN personnel engaged in R&D, users of the company's advanced hoist and crane products benefit from exceptional reliability, even in the most challenging of environments. This level of performance means that users can operate safely with the knowledge that unscheduled downtime will be minimised, increasing productivity and minimising TCO factors.

Efficiency in hoist and crane technologies is delivered through competent expertise. For instance, JDN products are purpose-designed to offer the industry's most efficient air consumption rates per metre lift, resulting in a significant contribution to minimising operational and lifecycle costs.

Reliability and year-round minimised maintenance is another inherent factor in ensuring reduced TCO. By maximising availability through 100% operating uptime, customers can rest assured they are getting optimum value from their investment. Furthermore, when scheduled maintenance is required, JDN hoists and cranes are designed to achieve extremely short service times, helping get the product back in operation as quickly as possible.

Complementing reliability in the TCO equation is safety. When an operation demonstrates safe performance, it instils confidence in the operator/process owner and avoids the costs associated with potential accidents, which can go far beyond projected finance levels. To achieve inherent equipment safety, robust engineering is required, which is why JDN hoists and cranes are designed to be explosion-proof, dust-proof and humidity-proof.

Flexibility is another contributory factor to low lifecycle costs. A product can be expensive if it is not optimally matched to the application. JDN offers custom-made solutions to ensure that exact customer requirements can be met. This is backed up by choices of pneumatic or hydraulic operation, radio control and a comprehensive range of accessories.

All of these considerations serve towards the minimisation of TCO, which means that JDN products not only excel in terms of performance, but they are also extremely cost-effective over their full working lifetime.

Company Information

With over 200 employees across the group, J D Neuhaus GmbH & Co. manufactures pneumatically and hydraulically-operated hoists and crane systems up to 115 tonne capacity from its state-of-the-art facility in Witten, Germany. This globally unique specialisation means that J D Neuhaus has set the quality standard for the market, a move that has seen the company become the established global leader in its technology field with customers in more than 90 countries worldwide.

Resilience and reliability are the key product differentiators, thanks largely to their explosive protection rating which makes them ideal for use even in the most challenging of operating environments. Extreme applications include oil and gas exploration in arctic temperatures as low as 45°C, along with underwater tasks such as ship hull

repairs, and plenty of others in demanding sectors like mining, the chemical industry, heavy plant construction and many areas of logistics.

The wide portfolio of services provided by J D Neuhaus includes equipment assembly, inspection, maintenance and general overhaul, along with the supply of customer training courses.

Over 80% of production from the Witten plant is exported, which is why the company has long-established subsidiary companies in France, Great Britain, Singapore and the USA, all of which have helped create a tight-knit global network in collaboration with international partners.

J D Neuhaus has history that can be traced back to 1745, and is now in its seventh generation of family ownership. Visitors to the Hebezeug-Museum (Hoist Museum) in Witten, are able to see for themselves the remarkable history of this progressive company.

Further information is available on request to:
J D Neuhaus GmbH & Co. KG, 58449, Witten-Heven, Germany
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SICK's OD1000 Goes the Extra Distance for Precision

The SICK OD1000 displacement sensor sets new standards in high-precision distance measurement with its extremely long 1 metre scanning range and a resolution down to 450µm.

Developed by SICK to achieve high consistency and linearity in measurement results on many different surfaces and colours, even at high production speeds, the OD1000 goes the extra distance for performance and value.

Many automated industrial processes such as the metal forming and automotive industries, depend on such precision measurements, for example for on-belt positioning, metal sheet edge counting and diameter checks on spools or coils for unwinding tasks. The OD1000 offers new levels of precision and range at an affordable mid-price point. With intelligent measurement filters incorporated in the firmware, objects with virtually any surface or colour of object can be reliably measured.

Says Neil Sandhu, SICK's National Product Manager for Measurement Systems: "The OD1000 delivers excellent results over a wider distance range than has ever been achievable previously. The OD1000 simplifies machine integration and is easy to install and commission.

"Users welcome the fact that it is a compact, low-cost, single unit device that's easy to install. It is very easy to mount and set up, with an on-board OLED display. Using the SICK SOPAS parameterisation software, with its innovative new menu structure, allows easy distance visualisation and teach-in."

The OD1000 incorporates SICK proven IO-Link communications to enable set process parameters to be uploaded and saved, making commissioning and device replacement swift and error-free. IO-



Link also provides opportunities for enhanced data handling and diagnostics.

A choice of outputs is available including switchable, scalable analogue (MA/V) and push-pull. The OD1000 represents good value for its performance and capabilities as part of the SICK OD range of laser scanners, which represent a comprehensive selection of performance and value to suit measurement applications.

For more information on the SICK OD1000, please contact Andrea Hornby on 01727 831121 or email andrea.hornby@sick.co.uk.

EMADA Launched to Combat 12,000 Workplace Respiratory Deaths

The Extraction Manufacturers and Designers Association (EMADA) recently hosted its launch event at the National Motorcycle Museum in Birmingham.



Workplace extraction and ventilation is critical to the health and wellbeing of employees and despite many employers appreciating this position, UK industry is responsible for 12,000 workplace related respiratory deaths every year.

This staggering statistic is also responsible for over 400,000 lost working days every year and there is approximately 14,000 new workplace breathing or lung related conditions reported every year. This demonstrates that workplace respiratory health is an ongoing battle for industry. EMADA has been formed by manufacturers and designers of dust and fume extraction systems to ensure best practice and support the Health & Safety Executive (HSE) in its mammoth task of reducing the impact of poor work practices.

EMADA will collaborate with industry, the HSE and other bodies to ensure best practice is maintained and that future legislation is evolved through the support of industry experts to meet the ever changing demands of the workplace. By helping the HSE to drive compliance and provide industry expertise and input regarding existing and future legislation, EMADA is aiming to reduce the sad toll of

illnesses and deaths through work related respiratory issues.

At the launch event, EMADA association Chairman Mr Paul Rowlands said: "By forming this association, we are creating a conduit between the industry experts and the HSE. There is already a good level of regulation and guidance from the HSE, but there remain opportunities for improvement in many systems and their application. Lung latency is a 'long term' workplace accident and EMADA is taking a moral imperative to push best practice to industry. The statistics around workplace lung health are staggering and if the issue is not addressed it will place a burden of an extra £1bn each year on the NHS within the next 20 years. This is not a legacy issue but a real time concern we must all address."

Also addressing the members at the newly formed association was Sarah Mallagh, the Head of Health & Chemicals Unit at the HSE. Sarah mentioned to attendees that: "Many employers overlook controlling contaminants at-source and look to PPE equipment as a solution. We need to inform, instil and even enforce the message that 'control at-source' through effective Local Exhaust Ventilation



(LEV) systems are the best-practice solution to a healthier workplace. We can appreciate that the HSE isn't always the best vehicle for delivering this message, so building a relationship with EMADA, the wider industry and creating priorities and stimulating activity among industry is a new strategy to tackling occupational lung disease."

"The HSE has just re-published the HSG258 'Control of Airborne Contaminants at Work Guide' and the new guide has shifted the emphasis from the supplier to the employer. We have also launched the 'Healthy Lung Partnership' and we will be hosting a 'healthy lung' summit in November. We are aware of the huge task at hand and by moving emphasis and responsibility onto the employer; we will aim to make an impact on these statistics and overall workplace health."

The EMADA association welcomes applications for membership from extraction manufacturers and designers that are conscious of the magnitude of task at hand. Alternately, if you are health conscious employer and require more information on the impact of poor workplace ventilation and how the EMADA association and its members can deliver best practice methodologies and systems for industry professionals, please go to www.emada.org.uk

EMADA Association
Email: chair@emada.org.uk
Web: www.emada.org.uk

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Vib Analysis CAT III (Level 3) – 20th – 24th Nov 2017 Stoke By Nayland Hotel
Vib Analysis CAT I (Level 1) – 11th – 14th Nov 2017 Stoke By Nayland Hotel
Vib Analysis CAT I (Level 1) – 11th – 14th Dec 2017 Stoke By Nayland Hotel

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Rittal Offers Users Free Cooling Equipment Survey

Users of Rittal enclosure cooling technology are being offered free on-site inspection surveys to ensure that their production and process critical equipment is being adequately protected.



The offer is available for a limited period and extends to any business with Rittal climate control installations, ranging from top therm, roof mounted fans, to Blue e or Blue e+ cooling units, all of which manage the temperature inside their enclosures. The user does not have to have previously registered with Rittal for their cooling units to qualify.

Excessive temperature or overheating in an electrical enclosure means that enclosure cooling is very important for a number of reasons:

- Unplanned interruptions to production due to tripping or failing control components are costly
- Excessive temperature affects the correct operation and service life of electrical equipment
- High temperatures that lead to tripping or

failing control components are avoidable

- 80 per cent of control component failures may be addressed with a suitable cooling solution

Marketing Director Simon Kelemen says, "The costs of downtime, loss of production and system shut-down due to equipment running over temperature can easily exceed £10,000 per hour. I don't know any businesses that would be happy to right that off, particularly as it's entirely avoidable." Inspection by Rittal experts

For businesses with Rittal enclosure cooling equipment installed the process will involve an engineer conducting the review which will provide:

- Confirmation as to the condition of the devices
- An assessment of their cleanliness, function and serviceability

- An asset list documenting status of each enclosure
- A quotation (if required) based on the most appropriate solution for moving forward
- On-going service suggestions and offers, tailored to the site itself

To book a survey, users can contact the Rittal team via information@rittal.co.uk or call 01709 704105 to book their survey.

Further information on climate control solutions at www.rittal.co.uk and www.friedhelm-loh-group.com or on twitter @rittal_ltd.

Respirable Dust Is The Invisible Killer No-One Is Talking About

Retrospective measurement and analysis of Respirable Dust is no longer acceptable. According to the HSE[1] around 4,000 people in the UK die from dust inhalation related to exposure in the workplace every year (more than twice the number dying in road accidents) and hazardous industries need to improve the working environment.



While regulation is being tightened to improve working conditions, it is the fear of legal claims that is now focusing attention for managers, boards and shareholders.

How confident is the business that employees are safe from exposure to hazardous dusts, including silica? Faced with the need to boost efficiency and reduce operational costs, can managers afford to implement stringent health and safety practices that affect employee performance? Can they afford not to? Without immediate visibility of the quality of the working environment, it is an impossible choice. How can any manager determine the appropriate levels of dust suppression or create the right working environment without real-time monitoring of hazardous dust levels?

Matthew Evans, Business Manager – Dust Monitoring Systems at Trolex, a global supplier of gas and dust detection, connector solutions, strata monitoring to the mining and hazardous industries,

explains why organisations that operate with hazardous environments for the workforce need to wake up to the use of real-time technology in the workplace.

Legislative limitation in hazardous environments Safety regulation across the globe has become ever more stringent as authorities have recognised the dangers associated with working in hazardous dusty environments. From mining to tunneling and manufacturing, hundreds of thousands of individuals are working every day in high dust environments, and therefore at risk of inhaling potential health damaging toxins, most notably silica. Indeed, the problem is escalating, with technology innovation in many hazardous industries opening up new opportunities but also creating the risk of significantly more dust.

Such exposure can be insidious – workers are often unaware of any health issues until many years after the fact, as the raft of new legal claims

facing companies every year attests. In increasingly challenging environments, how can organisations protect all stakeholders – from employees and managers to the board and investors?

Balancing Safety with Performance

While regulations become ever tighter, balancing employee wellbeing with performance, productivity and a good working environment is far from straightforward. Providing dust masks is an obvious step but these are not necessarily comfortable pieces of equipment – they affect performance and the majority of employees would most definitely prefer not to wear a mask if there is no health risk.

Similar concerns surround the use of dust suppression techniques. Whilst effective, there is an associated cost, and in any highly competitive market experiencing price pressure, organisations are looking to minimise the use of suppression where possible. Yet with no accurate and, critically, immediate and continuous information about the current levels of dust in the environment, organisations simply cannot make these decisions in real-time. The only option is to follow a default strategy based on visual assessment of the dust levels and hope for the best. Not good enough, especially in an increasingly litigious environment.

Dated Monitoring Model

Of course, while the lack of immediate and continuous information leads to organisations struggling to ascertain risk levels, it also constrains regulators' ability to adequately enforce new regulation. But workers are also suffering – not only potentially long term health issues but also immediate concerns regarding the workplace. As awareness rises of the risks associated with dust such as silica, a lack of information can affect worker morale and the trust they place in management and the business.

The essential problem is the traditional process for analysing air quality which relies on collection through a filter over a period of time or on spot analysis giving a snapshot but no continued



monitoring. Typically a company will collect eight hourly samples which are then sent off for laboratory analysis – a process that takes up to two weeks! This is clearly not acceptable. Employees can be potentially exposed to hazardous materials during this time, yet managers have no data to support critical decisions regarding the use of safety equipment and suppression.

Without any way of accurately assessing the air quality in real-time, organisations are operating blind and run the risk of exposing employees to harmful dust – and the business to future lawsuits. Or, alternatively, if organisations insist on continuous, unproductive use of personal protective equipment and deploy expensive suppression techniques? It is a no-win situation.

Real-Time Monitoring

The latest monitoring technology operates in real-time, providing continuous analysis of dust levels which is fed directly into an operational system. In addition to being considerably less expensive and time-consuming than sending samples to the laboratory for analysis, the real-time insight transforms day to day operations.

With immediate visibility of the quality of the environment, an organisation can embark upon proactive strategies to improve air quality and dust suppression as and when required. It also enables organisations to confidently tell employees when it is safe to operate without masks – and employees

have access to the information, reinforcing their confidence in the environment. If the levels rise – or reach a maximum cumulative level permitted by legislation during an eight hour shift – an alarm can be raised to warn the employee to take the appropriate action, from putting on a mask to leaving the affected area.

Furthermore, with complete records of the level of exposure of every employee throughout their working life, a company has the information required to counter any possible court case or claim in the future. Both company and workforce are protected.

Conclusion

While environmental monitoring has become a standard activity within hazardous environments over the past decades, the lack of real-time information on dust levels has constrained both regulators and operators. Balancing employee safety with productivity and efficiency is an incredibly difficult task for any manager – and simply raising the penalty for excessive exposure to dust is no use if the regulation is hard to enforce, especially when the resultant illness may not occur for years, even decades.

In addition to being lower cost and far more convenient, real-time monitoring enables organisations to address their corporate social responsibility requirements for employee safety and meet regulatory demands without compromising operational performance. Employees are both

more confident in the quality of the environment and able to work effectively without unwieldy safety equipment when not required, making the work both more efficient and enjoyable. Business can deploy dust suppression and containment systems strategically and in a smart way that minimizes cost and maximizes production efficiency.

Critically, operations managers have, for the first time, certainty. With accurate, immediate information on the quality of the environment, backed up by the security of alarms should a level be breached, managers can confidently improve operational efficiency without fear of compromising workers' health. Using real-time information will go a long way towards minimising employee exposure, reducing time off work and negating the risk of legal action in the future.

With real time monitoring of hazardous work environments, organisations can confidently embrace the operational tactics that tend to create more dust – most notably silica – with full visibility of the impact on air quality and employees' health, and allay any stakeholder concerns.

By Matthew Evans,
Business Manager at Trolex.

For further information please visit:
<https://www.trolex.com>

Construction Dust: The Silent Killer

Expert safety advice on the dangers of construction dust

To ensure construction industry workers across the UK are kept safe whilst at work, the UK's leading safety expert, Arco, is continuing its efforts to educate business leaders about the long term dangers of construction dust, by offering free, updated, life-saving advice.

In the UK alone, 23 new cases of work related respiratory diseases are diagnosed every day¹. As active members of the Construction Dust Partnership (CDP), Arco is dedicated to reducing this figure by working with both CDP and Health and Safety Executive (HSE) to raise awareness and offer expert guidance for customers.

Those who regularly work on building sites where there is excess dust created from activities such as wall chasing, stone cutting, demolition, drilling or sweeping, are more likely to be at risk from construction dust related respiratory illnesses. These illnesses include lung cancer, asthma and Chronic Obstruction Pulmonary Disease (COPD); however, contracting these illnesses is avoidable with effective preventative measures as well as the correct use of Personal Protective Equipment (PPE) or Respiratory Protective Equipment (RPE).

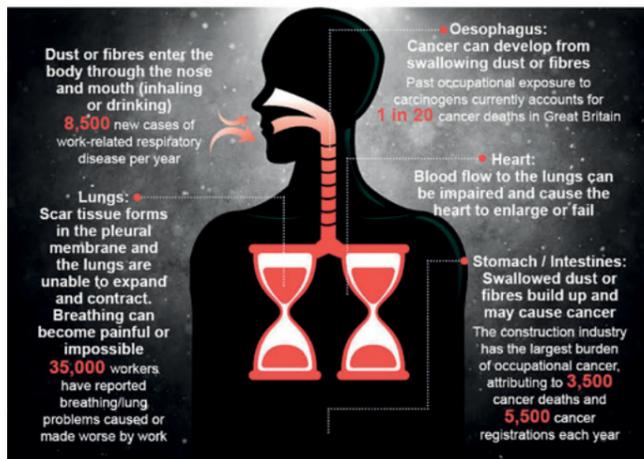
As well as offering advice on how employers can monitor dust levels and ensure their staff are safe at all times, the updated expert guide also showcases a range of products available that are designed specifically to help protect construction workers from harmful substances such as construction dust. The guide offers assistance on the types of masks required for different environments including both disposable and reusable respirators, half masks, full masks and Powered Air respirators. The guide also showcases the importance of face fitting and steps employees can take to ensure their masks are being used to their best protective ability.

Adam Willcock, Product and Procurement Manager at Arco, commented: "Construction dust has been dubbed the 'silent killer' for a reason, as it's responsible for an alarming amount of deaths every year. Our updated advice helps to offer employers the guidance they need to implement better safety measures for their staff members whilst at work. It's also worth noting that supplying your staff with PPE or RPE should be the last resort, instead trying to minimise the exposure level by changing to a less harmful material, using less powerful tools or even introducing water or on-tool dust extraction should be considered first."

Construction Dust: THE SILENT KILLER

***23 NEW CASES OF WORK RELATED RESPIRATORY DISEASE DIAGNOSED EVERY DAY**

Protect yourself before it's too late



Does this affect me?

If you do these jobs you could be affected

- Wall chasing
- Block and stone cutting
- Movement of rubble during site clearance
- Demolition
- Cutting wood based products
- Grinding and sanding
- Drilling
- Sweeping floors
- Carpentry

How significant is the problem?

- silica dust maximum daily exposure: **1p** (The amount of silica harmful to the body is tiny compared to a 1p piece)
- occupational asthma: **15-20%** of the total 5.4 million asthma cases in the UK are work-related
- Over **500** construction workers die from exposure to silica dust every year
- Every year the number of occupational cancer cases increase by over **5,000** in the construction sector alone

Your time may be running out. Protect yourself!

arco Experts in Safety www.arco.co.uk

For more information about Arco or to download the free construction dust expert guide, please visit <http://www.arco.co.uk/constructiondust>

Acceed obtains ISO certification

The independent German distributor for industrial network technology meets the highest demanding quality standards and therefore obtains certification in accordance with DIN EN ISO 9001:2015.

Acceed GmbH, located in Düsseldorf, has already had an efficient quality management system established for a long time and has now proven this within the scope of an audit in accordance with DIN EN ISO 9001:2015 by the certification company AssZert which has been accredited for 30 years. By passing the audit and receiving the certificate, Acceed now shows yet again the understanding and awareness of all employees for the exceptional commitment to meeting customer requirements in a special manner.



In order to meet the demanding ISO quality standards, the already existing processes from product selection to delivery and service were once again analysed and documented. The transparency achieved by this for each single work step within the company enables the measurability and adherence to the entrepreneurial quality, also for the future.

For its numerous customers, primarily from demanding areas of industry and research, Acceed proves the high standing, quality demands, customer satisfaction and trust in the product in daily work with the ISO certification. "We are clearly focussed on our customers' needs. Quality, flexibility and speed therefore practically always result in the desired satisfaction", as Dr. Werner Kunze, Founder and Managing Director of Acceed GmbH explains.

Further information about the company Acceed and all the products and services it provides can be found at www.acceed.net.

AirBench announce retirement of EX range

After many years in production, we have made the decision to stop production of our EX model. This is our lighter duty range, and we rarely supply this model to new customers.

Our FN type can be purchased at comparable prices for comparable sizes, and is a heavier duty unit. The FN type is welded and powder coated so is also a more robust product. We think it offers better value and solves the same range of issues.



We do have some stock of parts, so if you are a current user of the EX type and would like to add to your installation while stock lasts, contact us for latest pricing.

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Meet The Woman Showing Gender Is Not A Pre-Requisite To Success In Construction Industry

EDUCATION is key to showing the construction industry is no longer regarded as a 'man's job' – according to a female associate director at Birmingham's Building Services Design (BSD).

Jo Jones has been promoted to associate director at the mechanical and engineering (M&E) company – the first woman in the business to take on the senior role.

At the end of last year, data from the Office for National Statistics revealed women formed just 12.8% of the construction workforce – only 0.7% more than in 2007, just before the recession.

Jo said: "Despite the figures, things are changing and I think women are starting to recognise that there is a career for them in engineering and construction. There is still a massive gap, it is a slow process, and I think we need to start promoting the jobs available to women while they are still in school."

"Women have a lot more freedom of choice now – they can have a career in the industry while balancing their families and social life. It doesn't faze them. I think that's what will fill the skills gap eventually - as long as we start showing women what is available to them and re-educating people."

"Construction is a great career path – it's not all about being on a building site in a hard hat. People need to realise the opportunities available to them because development and infrastructure is important for the whole country."

Jo joined BSD in 2008 as a computer-aided design (CAD) technician and office administrator.

She said: "I fell into the industry by accident. I originally went to college for three years and studied product design, but in my first two jobs in the construction and property industry I was given the opportunity to learn CAD."

"I moved to BSD in 2008 just as the recession hit and I have progressed into the position I'm in now. I've been fortunate to get involved in the business development side of BSD which means I'm able to network and form strong client relationships."

"I'm now the first woman within the business to hold the associate director title. I think it shows that promotions within BSD are not gender specific. You are judged on your abilities and dedication to the job, not on whether you are male or female. There are three female engineers and nine male engineers in the Birmingham office and we're working hard to achieve a gender balance in the business."

The M&E company has had a presence in Birmingham for 10 years, with 80 employees across its seven UK offices.

David White, managing director at BSD said: "There are very few women in the industry, especially in



senior management roles. Here at BSD, we are doing all we can to eliminate the stigma attached to construction and engineering being a 'man's job'.

"Jo is a fantastic role model for young women who need to see examples of strong, successful females in construction to show that gender is not a requirement for success in the industry."

"She has worked her way up the ranks since she started at BSD almost 10 years ago and has been committed to and hard working for the company."

BSD is celebrating its 25th anniversary this year – to keep up-to-date with its celebrations follow: @BSD_consulting on Twitter and Instagram, BSD company page on LinkedIn or visit: www.bsd.co.uk for more information.

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Risk Based Maintenance To Defeat Downtime Boulting Technology Launches Unique Maintenance Programme

Leading systems integrator, Boulting Technology has launched a new risk management plan, providing plant managers with an all-encompassing maintenance solution.

The new programme consists of a comprehensive survey that assess control systems across a facility. A survey, conducted by Boulting's engineers, provide plant managers with a report detailing the potential risks posed by equipment, such as control system failure, critical obsolescence and other scenarios that could cause unplanned downtime.

Unplanned downtime can not only cost a business thousands of pounds a day, it can also prove detrimental to its reputation, negatively impacting relationships with clients.

Boulting Technology's new risk management assessment allows plant managers to spot problems before they happen and put solutions in place, reducing the potential for unplanned downtime.

The initial online survey assesses areas such as obsolete parts, equipment life cycle, and efficiency. The corresponding report uses a traffic light system to make recommendations.

The multi stage recommendations, which are based on clients' key parameters, provide a hierarchy of risk. This helps to characterise and focus on the high risk critical systems in the first instance, enabling the plant manager to implement an appropriate and cost-effective action plan.

The no obligation risk management programme is the newest addition to Boulting Technology's portfolio of service and support offerings, which also includes 24-7 support for system breakdowns.

"By proactively managing risk, plant managers can plan maintenance schedules around the equipment they currently have and so avoid costly breakdown and downtime," explained James Davey, service manager at Boulting Technology.

"Control system maintenance is particularly important as these systems are often integral to the whole facility. PLC and SCADA systems are the heartbeat of a plant, so if they fail the whole plant may be vulnerable," Davey continued.

"Initial feedback from our clients has been overwhelmingly positive, particularly from the low margin high volume industries, for which unplanned downtime can be particularly devastating."

To find out more about Boulting Technology's service and support offering, including the new survey contact Boulting Technology on 01785 245466.

HOW TO USE BOULTING

BRISK

To reduce your control system downtime

WHAT IS BRISK?

A Control System Risk Analysis

A unique control system analysis tool to identify risks affecting efficiency, downtime and costs

STEP 1

Identification

Identify a process/machine controlled by a single control system. This may include PLC, HMI and other control components

STEP 2

BRISK Tool

Answer the questions using the online BRISK tool and submit, it only takes a few minutes!

STEP 3

Statistical analysis

We will apply our unique statistics-based formulas to fully assess your risk

STEP 4

Traffic Light Report

Receive your bespoke report. Your report will identify significant areas of risk and recommend improvements

COMPLETED!

Contact us to learn more today at enquiry@boulting.co.uk

Reducing downtime • Improving efficiency
Rationalising stock inventory • Reducing costs

BEKO TECHNOLOGIES extends METPOINT measuring technology range

New METPOINT® FLM SF13 and SF53 volume flow sensors from BEKO TECHNOLOGIES

The METPOINT FLM flow meter measures the compressed air volume flow, which is the basis for accurate consumption analyses for cost reduction and effective energy management. METPOINT FLM sensors reliably detect leakage, overloads and malfunctions. Based on the analysis of the sensor data, the components of the compressed air system can be adjusted for optimum efficiency.

The latest generation of FLM sensors from BEKO TECHNOLOGIES are now available:

The SF13 has been specifically designed for decentralised consumption measurements close to the actual consumers. It comes with a display showing the measured parameter values and

configuration regarding the required gas type or LEDs indicators, signalling that calibration is due. The device is available for flow-optimised measuring section diameters of DN8, DN15, DN20, DN25, DN32, DN40 and DN50. All sensors come with a digital RS485 MODBUS output as standard and are dimensioned for operating pressures up to 16 bar.

The SF53 is a sensor for centralised consumption measurements and features a display showing the measured parameter values and configuration regarding the required gas type or LEDs indicators, signalling that calibration is due. It can be easily installed, even if the system is under pressure. The matching plug-in probes come in sizes 120mm, 220mm and 400mm. All SF53 sensors come with a



digital RS485 MODBUS output as standard and are dimensioned for operating pressures up to 50 bar. Display is optional.

Both sensors are ready for connection to a METPOINT BDL or BDL compact data logger, as the BDL data loggers are already preconfigured accordingly.

Please call us for more information on 01527 575778.

Why Calibration Of Your Instruments Is So Important

The main reasons for this are to ensure the reliability of the instrument, that it can be trusted. To determine the accuracy of the instrument and to ensure the readings are consistent with other measurements.



Compressed air systems are however generally run under constantly changing, dynamic ambient and operating conditions, which cause the quality of the compressed air to fluctuate within the measuring range and between the system-defined limits (such as those of the compressed air quality classes according to ISO 8573.1).

To accurately capture the values across the entire operating range, multiple-point calibration is therefore simply a must, although it is a much more time-consuming and costly task.



Five-point calibration as manufacturer standard

BEKO TECHNOLOGIES takes its slogan "Better through Responsibility" seriously and therefore has adopted five-point calibration as the standard method for its measuring devices and sensors. Furthermore, all adjustments that are required based on the calibration results are covered by the calibration flat charge. While five-point calibration is more time-consuming and expensive, it has proven the most effective approach to protect compressed air system operators against costly claims for damages. All calibration procedures are performed on a standardised test bench and customers obtain a detailed report of the five-point factory calibration results. We can also execute more calibration points. Furthermore, specific customer calibration such as calibration within the operating range of the instruments can be done.

Call us now on 01527 575778 or email info@beko-technologies.co.uk

Get the measure of your compressed air quality.

Be Compressed Air Aware

In view of the compressed air applications that pose a risk of contaminating end products with mineral oil, BEKO TECHNOLOGIES recommend online measurement procedures to ensure that compressed air is monitored at all "Critical Control Points" whether it be contact and non-contact with the product. BEKO TECHNOLOGIES have developed continuous online measurement equipment to monitor air quality standards down to ISO 8573-1 Class 1 for particulate, dew point and oil.

Call us to book in for an ISO air quality test on 01527 575778

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The main reasons for this are to ensure the reliability of the instrument, that it can be trusted. To determine the accuracy of the instrument and to ensure the readings are consistent with other measurements.

Considering the costs arising from legal action for damages that might be filed against you, the expenses for proper calibration and adjustment are minor in comparison. Companies who take their responsibility seriously and wish to establish long-term business relationships therefore need to calibrate their equipment regularly. It could also void your warranty if your instrument is not calibrated.

No quantitative data – no quality assurance

Accurate measuring is probably the most effective way of averting costly repairs or even claims for damages. This applies in particular in the context of international standards for quality management systems (e.g. ISO 9000 ff., HACCP), and also with regard to claims based on product liability legislation.

Calibration and adjustment

A measurement error is the difference between a measured value of quantity and its true value. Such errors tend to become more frequent the longer a device is in operation. At some time, the deviations might be so great that they are no longer within the specifications, which means that quality is no longer assured.

By calibrating the device, the measurement error can be determined and documented. If the measurements are outside the permissible range, the device needs to be adjusted. In this process, the measuring instrument is reconfigured so that measurement errors are minimised and deviations from the setpoint value are within the device specifications.

One-point or multiple-point calibration?

One-point calibration is sufficient for quality assurance under static operating conditions.

Go With The Flow

Keith Barron from Atlas Copco Compressors advises plant managers to give priority to pressure and flow when specifying compressed air systems in order to optimise performance and energy consumption.

It's now widely accepted that compressed air accounts for on average 12 per cent of industrial electrical power consumption. In exceptional circumstances, it can even represent 30 per cent of a company's energy consumption and therefore compressed air should arguably be seen as the UK's 'fourth utility' along with electricity, water and gas. Furthermore, energy expenditure is the dominant factor in a compressed air installation's overall cost, often representing up to 80 per cent of a compressor's lifecycle operating budget. So, it follows that when specifying equipment for plant air process applications every care should be taken to ensure the system's performance and output is closely matched to the application need.

However, this precautionary approach has not always been adopted by purchasers of new installations or replacement equipment; or for that matter by some sources of supply. The reason derives from past practises. In less energy-conscious times, air compressors were regarded as something of an 'easy-fix' when setting up an industrial plant. This meant that not all installers attempted to match equipment specification and performance with any degree of precision to plant air applications. As a result, it was not an uncommon practice for suppliers to over-specify air compressors' power and output ratings without challenge or regard to outcome.

The legacy of that era remains in many areas of industry, whereby the common benchmark for equipment performance comparison, especially in like-for-like replacement purchase scenarios, is restricted solely to the kW power rating of the installed motor drive. This figure is still deemed by some to provide sufficient information, as opposed to calculating the actual pressure and flow required to optimise productivity and energy-efficiency.

The compressed air equipment in an installation determines the requisite working pressure of the system. This does not just depend on the air compressor, but also on the design of the compressed air system and all of its pipework, valves, dryers, receivers, and filters. At the same time, the nominal air requirement for an application should be determined by calculating the air consumption for all the tools, machines and processes that will be connected. In addition, it should include an estimate of their individual utilisation factors. What must also be taken into consideration at the outset are additions for leakage, wear, and future changes in the compressed air requirement, which, experience shows, should be based on a probability factor that is close to 60 per cent.

The laws of physics state that an increase in pressure creates a decrease in flow. This correlation is important to bear in mind when suppliers seek to determine the required size of an air compressor based on its rated motor power. For example, a basic 7 bar air compressor, driven by a 15 kW motor, will deliver compressed air at a maximum volume of approximately 45 l/s. However, the free air delivery from a 10 bar version will deliver only 37 l/s from the same power unit. Therefore, an increase in working pressure by 1 bar increases the power requirement by approximately 6 per cent.

Pressure + Flow = Energy = Cost

For this reason, energy conscious manufacturers of stationary oil-injected air compressors should seek to offer potential customers a number of pressure/flow variants in each kW category, and encourage installers to adopt the mantra: pressure + flow = energy = cost. Atlas Copco, for example, offers four options in each kW category across its entire range



of rotary screw compressors. In the 11 kW range alone that can represent a 30 per cent differential in flow rate and over 32 per cent difference in unit costs. To illustrate this further, a 26 kW model is available that is unique to the marketplace as all other offerings in this power sector are limited to a choice of 22 and 30 kW machines.

It pays to be sure

When it comes to replacing existing equipment, most companies would agree that to get the best return from their capital investment it pays to carry out due diligence. One way to ensure a new compressed air system will be optimised, and provide the efficiency improvements that are promised, is by conducting an energy audit. This should be done both prior to replacement and at regular intervals after new equipment has been installed.

Applying simple and non-intrusive air audit data logging techniques to compressed air systems provides a true indication of an installation's air use.

Ultimately, it will flag up any wastage factors such as leakage and pressure drops. Most importantly, an audit establishes how well a compressed air system is actually performing and will highlight opportunities to increase production uptime, reduce maintenance and improve operating costs.

Monitoring techniques for compressor systems have been applied to countless diverse applications throughout industry and as a result of implementing these energy-efficient measures, it is not uncommon for operating cost savings of as much as 40 per cent to be realised.

New designs, new opportunities

Modern compressed air equipment, when correctly matched in terms of pressure and flow to process demands, can offer the benefits of reduced specific energy requirements (SER), improved productivity, and lower lifecycle costs. Their enhanced performance may actually allow a lower kW rated machine to be specified at a correspondingly

smaller purchase price and reduced running costs in comparison to higher rated equipment. In recent years, a number of new oil-lubricated rotary screw compressors have been introduced that offer significantly increased performance across these areas.

To take full advantage of what these advanced machines can offer, it pays to apply a few essential rules when deciding on a new compressor: Assess present and future needs by first checking out the existing system with a thorough air audit. Take account of all variables from air end output right through to point of use. Do not rely solely on stated motor power rating to match the compressor performance to the process air demand. Start with the pressure and flow requirement and then find the best fit in terms of drive motor power. Always keep in mind: pressure + flow = energy = cost.

Keith Barron is National Sales Manager of Atlas Copco Compressors.



For further information please visit: www.atlascopco.com/en-uk

Compressed Air Centre Acquired By Entrepreneur Duo

Compressed Air Centre Ltd, one of the South East's leading distributors of high quality compressed air products, has been acquired by private entrepreneurs Ben Richardson and Serge Santos.



The Chessington based business has been trading for more than 25 years and is ISO9001 and CHAS certified and a BCAS member. It offers an end-to-end service for users of compressed air from the sale, installation, and servicing of compressors through to a 24-hour emergency breakdown service and the hire and rental of compressors. It also offers a trade counter and online air fittings catalogue for parts and spares.

The existing owner, Neil Rummens, will continue to be heavily involved with the business working with the company's customers across London and the South East of England. It is an accredited distributor for Bambi compressors and FlowTechnology pneumatic fittings and HPC Kaeser for South West London, Surrey and Hampshire.

For further information please visit: www.compressedaircentre.ie

What Is The Future For Connected Compressors?

By Stef Lievens, Business Line Manager for Compressor Technique Service Operations at Atlas Copco Compressors UK

Anyone who has ever been stranded at the roadside with a stationary car would have to reluctantly acknowledge that a proactive maintenance plan is always better than a reactive remedy. However, finding the time and resources for regular servicing and health checks is not always simple. For production managers in an industrial environment, the dilemma is particularly acute, since the consequences of critical machinery failure not only include the time and cost associated with repairs but the grave prospect of production downtime.

Could the burgeoning Internet of Things (IoT) provide an answer? The IoT, which aims to add intelligence and connectivity to almost any device or machine, is envisioned by many as a transformative force for change in the manufacturing world, from the introduction of advanced robots in the workplace to smart components that communicate their own assembly instructions to the production line. This growing trend is reflected by the latest findings of the EEF, which predicts that manufacturing companies are planning to invest more in internet connected capital equipment over the next five years¹.

The potential impact of IoT technology upon manufacturing in the future continues to be debated. However, one of the most immediate applications of the IoT is in the field of condition monitoring, where a combination of hardware and software is capable of conducting real-time diagnostics and transmitting findings to the relevant workshop or maintenance manager, either as an immediate alert or a timeline of performance trends that may indicate longer-term changes.

The objective of such smart monitoring is to identify and solve performance or efficiency issues before they evolve into a full-scale equipment failure.

In addition to supporting preventative maintenance, this stream of technology is helping plant managers

optimise productivity and keep running costs down. Given such valuable benefits, it is little wonder that the onset of smart monitoring is reaching every corner of manufacturing practice, and the compressor room is no exception.

Remote monitoring of compressor and vacuum pump performance, with a system such as Atlas Copco's SmartLink, enables functional problems to be identified in real-time and resolved swiftly to avoid lost or reduced productivity, to remedy poor performance and to maximise energy efficiency.

The on-site servicing of compressor systems has traditionally followed two paths; the proactive route undertaken on a regulated basis, whereby users take out service contracts to ensure regular planned visits from a service technician, or alternatively taking appropriate action only when an unforeseen problem requires an immediate intervention. This latter scenario means the plant operator has to keep a continuous eye on running hours and performance parameters, calling for service when needed. If left too late there is an inherent risk of excessive energy consumption and possible mechanical breakdown.

Offering an answer to this, SmartLink is a data monitoring programme for compressors that intelligently gathers, compares and analyses data to help compressed air users increase maintenance and service efficiency.

Making smart use of connectivity, data monitoring and business intelligence, SmartLink helps customers get a better view of their maintenance needs, maintain production uptime and improve their operating costs, wherever possible, by minimising energy consumption.

SmartLink works by monitoring indicators such as specific energy and compressed air pressure



calculations so that immediate improvements can be made when needed. The results can then be used for energy monitoring procedures.

By combining the hardware monitoring unit with a customisable data monitoring programme, data is gathered, compared, and analysed; and, when required, warnings are sent out in order to prevent downtime and to allow local service providers to plan and prepare their interventions.

The SmartLink solution is divided into three options: Service, Uptime and Energy. SmartLink Service enables the user to easily schedule maintenance visits as they have an overview of machine data and the time left before a service is due. The second option, SmartLink Uptime allows the end user to be informed by email or SMS message if there is a problem with the compressed air production. Without this safeguard the user has to be alert for warnings on the compressor system but even daily checkups do not offer 100 per cent security. Based on the SmartLink information, the necessary actions



can be taken to avoid the risk of a breakdown – and it is possible to visit the website at any time to see the actual warning/shutdown status of the machines as well as a history of previous notifications. Finally, SmartLink Energy enables the continuous monitoring and analysis of the performance and energy efficiency of a compressor installation.

Remote condition monitoring is an example of fledgling IoT technology that is already having an impact. However, it is with the addition of control that the full potential of the IoT can be realised in the future.

One definition of the IoT is that it 'allows objects to be sensed and controlled remotely across existing network infrastructure, creating opportunities for more direct integration between the physical world and computer-based systems, and resulting in improved efficiency, accuracy and economic benefit'.

Vast volumes of data can be securely stored in the Cloud and analysed for patterns and trends in order to optimise future performance. The eventual goal is progression towards full remote or automated control, based on the machine-acquired data – and with the IoT evolving rapidly, that's not too far off.

This has all been made possible because processors have become more powerful, devices are becoming smarter, and mobile connectivity has become faster and affordable. The Internet of Things is benefiting the manufacturing and industrial world

by enabling faster communication and enhanced plant automation.

As more devices become linked to the Internet, plant managers are able to see performance metrics and other crucial data in real time, keeping an eye on operations and communicating via smart phone, tablet or laptop from any location. Research suggests that globally, at the current pace of the technology take up, there could be 25 billion connected devices by the year 2020. The IoT changes data into actionable information. It enables a constant stream of performance data to provide real-time insights on production processes. Big data provides an infrastructure for transparency in the manufacturing industry and acts as the input into predictive tools and preventive strategies, unravelling uncertainties such as inconsistent component performance and availability.

Predictive manufacturing, as an applicable approach toward near-zero downtime and transparency, requires vast amounts of data and advanced prediction tools for a systematic process of data into useful information.

A conceptual framework of predictive manufacturing begins with data acquisition that can be sourced via remote monitoring devices.

The culmination of these advances is fully embraced in the concept of Industry 4.0. Originating as an initiative of the German government to enhance manufacturing efficiency and flexibility by computerising traditional industries and

processes, its ultimate goal and true potential is to transform factories from cost centres to profitable innovation centres, shifting from mass production to customised products.

Industry 4.0 is about fully integrated industry – intelligent digital networking and integration of industrial systems and processes. The strategy focuses on creating cyber-physical systems, the communication technologies, software, sensors and processors that have the potential to communicate and interact with each other in an intelligent way to gain competitive edge. An essential component of this interactive process can be a remote monitoring programme such as that provided by SmartLink.

Looking to the future, there are greater opportunities for the IoT to enhance best practice in compressed air operations.

Remote monitoring, as a component of the larger IoT trend, provides the gateway to integrated industry – the concept that enables machines to communicate with each other and ultimately allows entire production lines to reconfigure themselves autonomously. As such, small-batch and one-off production in large scale plants becomes commercially viable – achieving the goal of transforming the factory from cost centre to profit centre.

For further information please visit:
www.atlascopco.com/en-uk

LATEST HI-LINE AIR DRYERS OFFER EVEN MORE BENEFITS

Hi-line Industries, an established and reputable UK manufacturer of high-quality compressed air purification equipment, has unveiled the latest generation of its flagship HBP-ZL absorption air dryers.



Featuring a long list of enhancements, these already best-selling air dryers now offer even more appeal to those in the manufacturing and process industries.

With the latest upgrade, Hi-line can now place more emphasis on meeting specific customer requirements. For instance, although the new-generation HBP-ZL absorption air dryers feature a high-quality Siemens touch-screen controller as standard, Hi-line can install whatever controller the customer desires. This flexibility in terms of choice is extended further through the availability of TÜV and PED or ASME 8 vessels, along with stainless steel or galvanised pipework options. For OEM customers, the system can even be branded to suit compressor equipment, if required.

Hi-line has also focussed on minimising TCO (total cost of ownership) with the latest generation

systems. Energy consumption is one of the primary contributors to TCO, which is why HBP-ZL equipment offers the lowest possible running costs of any similar dryer, principally through constant automatic fine tuning of its innovative AEMS – Automatic Energy Management System.

AEMS, which is fitted as standard, undertakes continuous data collection from the dryer operation to maintain cost-effective timing and utilisation of the drying cycles. Moreover, the process can be optimised with precise appropriation of low-energy tariffs for the selection of heater regeneration cycles. Importantly, no compressed air is lost or wasted during operation and system regeneration is achieved by desiccant cooling together with an external heat source and bi-directional blower.

The unit is fully lagged as standard to enhance

efficiency even further, while electric, steam, heat of recovery and solar regeneration options can be offered. Additional energy saving functionality includes soft-start options and the deployment of bi-directional fans in tandem with integral data logging functions for the AEMS. Dial-in modems and Bluetooth facilities are also available.

Quality is assured with the UK-designed and assembled HBP-ZL. Failsafe, top quality stainless steel valves and actuators are used throughout, along with stainless steel wedge wire air-diffuser plates. UK-manufactured components are used wherever possible, and a 10-year warranty is available to all customers that take out a service contract.

The range of standard dryers spans 15 models that provide throughput capacities from 165 up to 5500 scfm. An on-site survey can be undertaken to determine dryer height and footprint dimensions, as well as any alternative software requirements. Build times are the shortest in the industry as appropriate vessels are held in stock.

Hi-line fully supports its products using the company's nationwide team of service technicians, each of whom is fully trained and conversant with energy management and compressed air requirements.

Further information is available from:
Hi-line Industries Ltd,
5 Crown Industrial Estate, Oxford
Street, Burton on Trent, Staffordshire
DE14 3PG
Telephone: 01283 533377
Fax: 01283 533367
e-mail: enquiries@hilineindustries.com
www.hilineindustries.com



Product Failure: What would it cost?

Product failure is an increasing concern for all manufacturers.

Reports of smartphone faults, dangerous consumer products, automotive component malfunction, and food and beverage contamination are on the rise.

Yet many companies still lack effective risk management techniques and adequate financial protection. The complexity of available insurance policies can make the process painful both to the buyer and the balance sheet.

Many businesses assume they are covered for product failure, only to discover too late that they are not.

Others fail to take reputational damage into account or vastly underestimate the time it would take to become profitable again.

As the world's largest privately held independent insurance broker, our 6,500 professionals are free from shareholder demands. Our only focus is to provide the best advice and service to our clients. With specialist product recall expertise and strong relationships with insurers, we not only do everything we can to protect you from risk, we also help you recover quickly if an incident does occur.

Because if we don't, who will?

Find out more

Greg Hall Cert CII
Direct Tel: +44 (0)20 7933 2303
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Aspen Pumps' Storm Green XL Wins Cooling Industry Award

Aspen Pumps, the UK's market leader in condensate removal pumps and accessories, is celebrating winning a prestigious RAC Cooling Industry award for its revolutionary Green XL range from Storm Chemicals.



Storm Green XL is the first sector-specific probiotic cleaning technology on the market and beat off stiff competition to win the 'Air Conditioning Product of the Year - Components and peripherals' category. This makes it two in a row for the innovative manufacturer after Aspen Pumps won the 'Air Conditioning Product of the Year: Accessory, Component or Process' category at last year's awards with its Micro-v i4 intelligent AC condensate pump.

Now in its 13th year, the RAC Cooling Industry Awards champions the leading innovations and environmental successes in the refrigeration and air conditioning industry. The award winners were announced on 27th September 2017 at the prestigious London Hilton, Park Lane, where the key players in the industry came together for a

night of recognition and celebration of the sector's achievements.

"We are thrilled to have won another RAC Cooling Industry Award and to have this new addition to our portfolio recognised in this arena is a great achievement. Storm Green XL is an exciting addition to our product range," explains Vern Klein, Head of Business Development – Storm Chemicals at Aspen Pumps. "Storm Green XL is an innovative, effective and environmentally friendly deep cleaning solution that is easy to use and ideal for any regular maintenance program and results in fewer call backs and improved energy efficiency of equipment."

The revolutionary Storm Green XL offers a step change for the air conditioning (AC) sector as the first sector-specific probiotic cleaning technology



on the market. Using microscopic deep cleaning technology Storm Green XL provides a long lasting deep clean beyond the microscopic layer (biofilm), leaving a healthy microflora on the surface ('good' microbes to fight against 'bad bacteria') and so ensuring a product remains clean in-between service intervals. Plus, unlike conventional disinfectants, bacteria cannot become resistant to it. Storm Green XL removes both the visible and invisible dirt eliminating dust, mould, bacteria and other pollution as well as neutralising bad musty odours caused by fungi and bacteria.

Thanks to the intensive, deep clean provided by Storm Green XL, the energy efficiency of AC equipment is improved. Keeping equipment clean can provide up to a 30% energy saving, making an effective clean a great bonus that saves companies money. Using Green XL also results in fewer call backs since AC will be clean for longer and so work more efficiently.

The Storm GXL range adds to Aspen's already extensive range of HVACR products. The company's continued growth and award-winning innovations make it one of the market leaders in condensate removal products and accessories.

For further information please visit: www.aspenpumps.com

Lunchtime Training Helps Find Untapped Electrical Efficiencies In Pump Systems

Opportunities to improve the efficiency of green and brownfield pump systems are explored in new Lunch 'n' Learn training session

ABB introduces a Lunch 'n' Learn training session that shows how to improve the electrical efficiency of pump systems, while saving up to 20 percent in energy costs.

The CPD-certified System Efficiency course is one of many services offered as part of ABB's 20+20 vision for improving customer outcomes in the water industry. The session covers the electrical infrastructure for greenfield and brownfield pump systems.

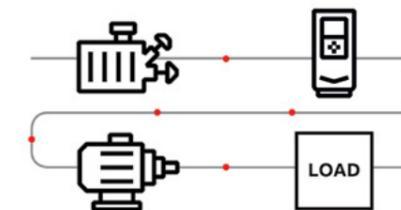
In any water or wastewater facility, pumps are the biggest energy consumer. In many cases, greater efficiency can be achieved by optimising the electrical system driving those pumps. An electrical system typically comprises a transformer, variable speed drive (VSD), electric motor, switchgear and cabling.

The first half of the session focusses on how to design efficient pump systems. This includes how

to accurately compare manufacturers' efficiency ratings for products to ensure pump systems are as efficient in operation as they are on paper, as well as understanding how the interaction of various components within the pump's electrical system can impact – both positively and negatively – on overall system efficiency.

Armed with this information, utilities planning new sites can ensure pump systems are fully optimised from day one. This information can also be used to improve the efficiency of existing pump systems by between five and ten percent on average by identifying components that can be fine-tuned, replaced or adjusted to improve overall efficiency.

The second half of the session explores additional ways to improve the efficiency of installed pump systems by optimising the individual components in the electrical system. This includes an overview of the various methods that can be employed to reduce



pump speed. A 2 Hz reduction in speed is a 12 percent energy saving typically on a pump system. Therefore reducing pump speed can cut energy use considerably and save many thousands of pounds a year.

ABB's System Efficiency Lunch 'n' Learn training is recommended for anyone responsible for the specification or maintenance of electrical systems. The 45-minute session is free to attend and can be delivered to individuals or groups at customer premises or an ABB facility.

To book your training session, or to find out more, visit <http://bit.ly/2vZnpS2>

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Anglian Water Cuts £2,000 A Year From Borehole Pump Costs

Variable speed drive eliminates intermittent starts and stops on borehole pump, saving energy, reducing turbidity and improving reliability.



Anglian Water is saving £2,000 a year on a borehole pump's electricity costs following the installation of an ABB variable speed drive (VSD) on a submersible pump motor. The £7,000 project investment is expected to pay for itself within three and a half years.

The borehole is one of two operated by Anglian Water, at separate locations, that feed the reservoir serving customers in Sudbury, Suffolk. Prior to fitting the VSD at Blackhouse Lane, both pumps were run at fixed speed all of the time but had to be turned off frequently as the reservoir had reached the desired capacity. Anglian Water suspected that this system

Above: Gibbons was able to install the ABB VSD in an existing cabinet at the Blackhouse Lane

was inefficient as it was pumping more water than was required. The frequent stopping and starting of the pumps was also causing excess turbidity in the extracted water.

ABB authorised value provider, Gibbons Engineering Group, was asked to perform an energy assessment on both pumps, in Blackhouse Lane and Woodhall Road.

Andy Vincent, works technician at Blackhouse Lane, says: "The report found that the boreholes had a combined pumping rate of 70 litres per second, whereas the combined optimum rate was 50 litres per second. The actual demand from the reservoir was lower than our total pumping capacity and was the equivalent of the water pumped from one and a half boreholes."

The decision was taken to install a VSD on the pump motor at Blackhouse Lane. The drive alters the speed of the pump's motor to top up the reservoir as required. The borehole pump at Woodhall Road, without a VSD, runs at full speed to provide most of the demand.

Gibbons recommended a 132 kW ABB drive. The VSD receives a 4 20 mA signal via a radio link from the reservoir's level transducer. If the signal is less than 16 mA, the pump motor runs at maximum speed, while a signal of greater than 16.8mA means that the pump motor runs at minimum speed in a range of 40-50 Hz. This has reduced the amount of energy used by the pump motor at Blackhouse Lane, resulting in the £2,000 annual saving. It has also solved the problem of turbidity levels in the extracted water, which is now within acceptable levels.

The new arrangement has also built redundancy into the system, improving reliability. "Previously, running both pumps at full speed meant that the borehole pump at Blackhouse Lane could not take up the slack if the other failed - now if the pump fails it can ramp up the pumping rate to compensate," says Andy.

As well as the VSD, Gibbons also installed a du/dt filter to cut down interference on the mains. The windings in a borehole pump motor do not always perform well when connected to a modern drive so the filter was added to smooth out the voltage.

Another benefit of installing the VSD is that the risk of the chlorine in the treated water deteriorating is reduced. Chlorine left standing for too long can reduce in strength. With the VSD, the pump runs slower for longer, eliminating this problem.

For further information please visit: www.abb.com

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To give our customers a one stop shop NERO launched the new ecommerce website www.nero.co.uk which enables our customers to check price, availability and order. New premises were acquired in 2015 to maintain the increase in stock and colleagues. This has also enabled the stock quantities to increase to maintain an off the shelf delivery. The continuation of investment in stock means that NERO now stocks over 15 product ranges which are individually enhanced to ensure our customers'



requirements are met. The product ranges include Screwed fittings both low and high pressure, Valves, Compression fittings, Flanges, Pipe and Tubes.

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PPMA Award Innovative Processing System

Tapflo Group is a global manufacturer and supplier of Air Operated Diaphragm Pumps, Centrifugal Pumps and other industrial process equipment. Tapflo UK Ltd was established in 1998 and has been working within the UK industrial, food and beverage, chemical, petrochemical, energy, water treatment, surface treatment, automation and nuclear sectors ever since. With a team of over 30 people, and growing, based in the UK with national and international coverage, Tapflo prides itself on its attention to detail and high quality products and services. Working closely with customers and supply partners, Tapflo UK provides comprehensive solutions to all fluid and powder processing applications.

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Summary

From its humble beginnings, Tapflo UK Ltd has grown to become a leading supplier of industrial and hygienic process pumps, systems and spares. The company's belief is to become more than just another pump distributor; Team Tapflo strives to mould the company as an engineering centre offering equipment, engineered to order solutions for any process need, which are designed and built straight out of the facility here in the UK. Throughout the years, working closely with the customers, listening to their needs and looking at the market demand, Tapflo has addressed the energy conservation issue through the design, development, and just recently, the launch of the LEAP® Technology (Low Energy Air Pump) on a global scale.

As a result, Tapflo UK has been recognised for its commitment in developing a product that provides

customers not only with the highest performance in the process application but also the lowest energy consumption of its category with significant annual saving. The British LEAP® Technology after being announced to the Tapflo Group during the annual assembly in Vietnam, last May 2017, it has aroused great interest from all 72 global Tapflo Partners. Under great demand, LEAP® Technology has evolved in a new series of Intelligent Diaphragm Pump, the TC range, which is now available for a worldwide distribution.

Entry

Problem/Challenge

At the base of the development of LEAP® Technology was the question of how to reduce the waste of air pressure during the run of the pump and still keep high performances during the process. Typically, air operated double diaphragm pumps require a minimum air supply pressure of >1.2 bar to operate. Often the pump runs at 'mains pressure', which is significantly much higher than what the application requires. This results in a significant amount of wasted compressed air energy, reduced life of the parts and elevated noise levels during operation.

During recent years, the demand for a more efficient air operated pump was growing in the market. Distributors were looking to provide customers for a more reliable and well-made Diaphragm Pump solution that could provide the end user with feedback, precise control functionality and a cut in the energy costs. Tapflo UK Ltd. was already known by many in the industry for supplying the most trusted



and reliable equipment on the market for industrial and hygienic process pumps, when enquiries on the patented British LEAP® Technology, and its ingenious operating principle, started arousing. Thanks to its claimed performances over any other air operated pump available on the market, LEAP® has started building its success.

Among many successful stories of applied LEAP® Technology to the pump processing system, the case of a UK's Chemical Manufacturing Plant demonstrated remarkable results in reducing energy consumption in the manufacturing process and extra cuts in maintenance costs. This case was introduced to the Tapflo UK's Team from one of its distributors. The distributor contacted the British Team to assess the problems that its customer was having with an existing pump system and see whether there was a way of improving the reliability of the equipment, and at the same time reducing down time and spares costs. Overall the aim was to simplify the operation whilst retaining flexibility with the changes in demand by the production lines. The distributor's customer, the Chemical Manufacturing Plant, had its current system based on a complex, electrically driven, multi-headed diaphragm pump dosing system, which costed approximately £10,000 in a year for 4 pump systems on maintenance contracts, as well as, over £800.00 per diaphragm on the main product feed heads to replace each year. Due to the complexity of the pump system, downtime was also lengthy, costing the site thousands of pounds every time they needed to do any maintenance on the pumps.

Additional problems were also given by the fluid pumped. The fluid was pumping to a low temperature monomer which acts as a coagulant.

This proved to be an issue for both mechanically sealed and mag drive pumping technologies, suggesting that the application of a diaphragm pump was the only obvious solution for this system. However, standard diaphragm pumps required maximum amount of compressed air to operate, increasing running costs and high energy consumption. This air operated pump processing system would have required a fairly complex control gear to be integrated into their central control system in order to modulate the pumps and to maintain an accurate feed into the production lines, adding additional costs to the already costly pump system.

Overall, the all system was set to be inefficient and costly, affecting not only the entire manufacturing process performance but also the all Chemical Manufacturing Plant business. The plant needed a complete switch and the introduction of a more sustainable energy management for its pump systems.

Solution

Further to the initial site visit and report analysis on the existing installation, the end user was recommended to integrate the existing pump systems with LEAP® Technology. The unique and patented technology offered many features and benefits perfect for resolving the end users issues with their existing units.

LEAP® integration allowed the full digital control and feedback of the pump, enabling the end user to monitor the pump's operation and control the performance accurately, whilst retaining all the intrinsic benefits of a standard air operated diaphragm pump. The LEAP® control module provided an electrical feedback signal, triggered at the end of each stroke of the diaphragms, which allowed the external monitoring of the pump performance within the main process control system. When the pump is used in conjunction with the digital proportional control valve, the end user is also able to control the pump as if it was fitted with an electric motor and inverter system, providing seamless performance control via a 4-20 mA signal.

Additional benefits provided from the integration of LEAP® Technology also included a Batch Dispensing control, allowing the counting of the strokes of the diaphragms and stopping the pump after the required volume has been dispensed. The pumps also were able to control the Dry Running status, which by analysing the frequency of the pulses, it is possible to monitor whether the pump is dry running or not. When the pump starts to dry run the frequency of the pulses will increase. The pumps also supplied control on Dead Heading, monitoring

when the frequency of the pulses slows down or stops, meaning that the pump has deadheaded and indicating a closed valve operation or a blockage in the pipework.

As last, the integration provided full control on Flow Monitoring, which allowed the counting of the frequency of the pulses and also the monitoring of the flow rate of the media in the process. This is achievable as the diaphragms displace a set amount of fluid per stroke and by multiplying these strokes by the volume displaced per stroke, it provides an accurate indication of the flow. In the case of this specific end user, the team proposed the wiring in of a Coreolis flow meter with pulse feedback into their system, providing real time monitoring of flow for an even greater degree of accuracy. Coreolis Flow Meters are usually never used with diaphragm pumps as they are susceptible to pulsing flow. However, with LEAP® the pulsing effect (usually associated with the traditional diaphragm pumps) is reduced to minimum allowing the use of these monitor system without the hassle.

Outcome

The LEAP® Technology was originally designed to vastly reduced air consumption and provide ultra-low start up pressure. Usually, the proportion of energy used to produce compressed air varies between business sectors but it can be as much as 30%. With LEAP® Technology, as little as 8% of the total energy supplied by an air compressor is actually converted into compressed air at the point of use. The LEAP® pump is able to start pumping at 0.1 bar with no stalling. During tests, pumps integrated with LEAP® were already achieving flow rates of 70% of its maximum open end flow before other pumps had even started. In the case of this specific end user, after swapping their pumps to LEAP® Technology the affiliated energy costs to operate their lines was significantly reduced and kept to an absolute minimum.

Often, to operate a standard 2" AODD (like the ones used in the Chemical Manufacturing Plant) running at 150 l/min @ 1 bar discharge pressure over a complete 5 day working period would cost an average of £1,843.20 per year (based on the British Compressed Air Society; figures including £0.01 – £0.03 to produce 1000 litres of compressed air). Switching to a LEAP® unit saved the end user about £652.64 each year per pump with a total energy saving of £2,610 in total compared to the application of traditional air operated pumps.

Moreover, when running numerous pumps on site, any cost savings that can be made offer a significant effect on the end users energy costs. As commonly



known, the air operated diaphragm pumps are among the most expensive equipment to maintain. Many of this pumps will be working 24/7; parts replacement can cost up to £2,000.00 in a year for a 2" pump. As part of the innovative original Tapflo Diaphragm Pump, which has approx. 70% less parts than other diaphragm pumps on the market, LEAP® offers all the Tapflo's diaphragm pumps benefits plus more. The Air Valve used within the LEAP® has a significantly longer life expectancy over traditional rubber seal technology. Tapflo UK has developed its own air valve for use within the LEAP® Technology, using a lapped spool and sleeve construction. This method provides a life expectancy in excess of 200 million cycles. When the air valve finally needs replacing, it can be removed without the hassle to pull apart the side plates and diaphragms. It is done by simply removing 2 retaining screws and pushing the valve spool out through the access hole within the pump housing. The pump can remain in the pipework whilst this is done, reducing significantly any other downtime costs.

With the integration of LEAP® Technology in the pump systems, the end user was free from all the expensive maintenance contracts costs. The new pump systems allow the user to maintain the pumps by themselves, avoiding downtime, loss of production costs and the costs of spares. If calculating the total savings, by switching to LEAP® this end user was able to save over £ 45,000 per year, including maintenance costs, spare parts and energy bills.

For further information please visit:
www.tapflopumps.co.uk

Fujifilm Speciality Ink Systems selects Mainsaver CMMS

Spidex Software is pleased to announce that Fujifilm Speciality Ink Systems has selected Mainsaver CMMS to support best-practice management of maintenance at its manufacturing site in Broadstairs, UK.



Fujifilm SIS develops and manufactures inkjet systems for a wide variety of processes. Over the last decade the company has extended its product offerings from the heritage analogue range on which its reputation was founded, to pioneering precision UV curing digital inks.

The company's state-of-the-art facility at Broadstairs has won "Process Plant of the Year" at the Best Factory Awards on four occasions and is viewed as an exemplar of world-class manufacturing performance.

Until recently, Fujifilm was using legacy maintenance management software (CMMS) that had been in place for some years. The CMMS was, ironically, generating significant quantities of paperwork because it required each work order to be printed out.

CMMS project lead Adam Murrell recalls "At the end of each day there was often a bustle of engineers

around the PCs, each of them trying to enter work order data into the CMMS that they'd already logged on paper."

As a Continuous Improvement specialist, Murrell could see the flaws in the workflow. And he wasn't the only one. "There was certainly a feeling among the engineers that time spent double-entering information from worksheet to computer could be more productively spent on the tools."

Having decided to evaluate other CMMS options, Adam Murrell requested an online demonstration of Spidex's Mainsaver solution. Impressed with what he saw, he next arranged a more detailed functionality run-through on site.

"From an efficiency perspective, we liked the options Mainsaver gave us for mobile paperless working, the way users can locate an asset by clicking on a schematic layout of the site and the live real-time performance dashboards."

"Spidex also offered a highly structured and detailed implementation plan, which accurately reflected our own view of the project's importance."

Another important factor - as throughout modern manufacturing industry - is the increasing number of audits the company is required to undergo.

Adam Murrell: "We are continually assessed by external bodies for compliance within a range of regulatory frameworks including health & safety, environmental and ISO standards. Each of these audits demands a very high standard of record-keeping for traceability, and those records must be available for examination for years afterwards."

"Compliance is a hugely important aspect of 21st century manufacturing. It's no exaggeration to say that our CMMS requirement was as much about audit performance as process improvement and we are looking to Mainsaver to underpin activity in both areas."

Spidex Managing Director Jonathan Starling commented: "Fujifilm Speciality Ink Systems is a genuine best-in-class manufacturer that continually strives for perfection. It is a privilege to be working with such an exciting, forward-thinking organisation."

Spidex Software Limited
 Temple Way, Coleshill, Warwickshire,
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Valuekeep Mobile app, made to improve maintenance management on the go

The app for smartphone, tablets and desktop to help maintenance managers, requesters, and technicians to control all the maintenance operations on the go.



how you can benefit from this mobile CMMS solution - youtu.be/5nLtJIPd16k

About Valuekeep

Valuekeep is a software solution provider of Computerised Maintenance Management System (CMMS). With more than 20 years of combined experience in developing CMMS solutions, Valuekeep counts with a team of highly skilled professionals, working hard every day to provide the best maintenance management solution for companies across Europe, Africa, and South America.

For further information please visit: www.valuekeep.com

Recently launched to the market, the Valuekeep Mobile app offers all the Valuekeep users access to key features of the CMMS software wherever they are. The task of registering, managing and reporting work processes on the go is easier and quicker from the comfort of a smartphone or tablet.

Valuekeep Mobile's main purpose is to give users an enhanced access to the main CMMS' data in real-time, reduce data entry time, fast work assignment and real-time tracking & reporting. In addition, it counts with an offline mode feature that allows users to do their work even without an internet connection.

This powerful mobile app is the smart response to all companies, from small to large sizes enterprises, working in the manufacturing, retail, healthcare, hospitality, building management, construction or service providers industries, with the need to access

assets' information on the go, allocate and report maintenance work, and submit relevant information to the main system.

Valuekeep Mobile works across multiplatform, and also has RFID/NFC connectivity, GPS tracker, QR & barcode reader, integrated chat, push notifications, and multi-language options to improve user's experience and productivity whilst their doing their work in the field.

Valuekeep Mobile is currently available to STAR, GALAXY or UNIVERSE plans, with just an additional £15 per month.

Please visit www.valuekeep.com to find out more about the new mobile app, to subscribe or to learn more about Valuekeep CMMS.

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5 ways a Mobile CMMS Can Save Your Company Time and Money

These days, there's a mobile app for just about everything. Computerized Maintenance Management Systems (CMMS) are no exception. A good CMMS will also have a mobile app integrated, making it easier for a company to save both time and money. Here's how the apps do that.



Portability

A mobile CMMS, such as MAPCON Mobile, allows workers to carry their CMMS system with them wherever they go. Work orders can be created and/or completed from the floor using a smartphone or tablet, which can be a huge time saver. Since work orders can be created on the spot, workers no longer need to spend time trekking back to their desktop computer to get the repair process in motion. This also means they don't have to try and remember details about the machine or needed repairs while finding a computer, which helps eliminate human error. Also, if you lose your internet connection while using MAPCON's app, the information will be stored and updated once connectivity is restored.

Reporting

Many reports can be run from a mobile device, and are displayed as PDFs. The ability to have virtually

any report available at any given time can be a huge advantage. For example, if a maintenance manager is on vacation and is concerned about the amount of work being done while out, they can simply pull up their mobile CMMS app and run a report to see how many work orders were completed that day. It can also be helpful when managers are in a meeting, and specific reports are needed.

Mobile Alerts

One of the best features of a mobile CMMS app is the mobile alerts. Even when the app is not being used, workers can still receive important notifications. The software can be set up to send alerts for things such as purchase orders requiring approval, dispatched work orders, and many other things. Knowing immediately when an approval is needed on a purchase request means needed tools and inventory items can be purchased faster, thus reducing equipment downtime. Additionally, receiving a notice when a work order has been

sent can really help get repairs made in a timely manner. This can also help decrease costly machine downtime.

Attachments

A mobile CMMS allows users to add attachments, such as pictures or documents, to work orders. This can help clarify the exact issue on the equipment that needs repair work done, thus eliminating any confusion. For example, if an employee noticed a belt on a piece of equipment needs replaced, but the machine has more than one belt, the worker could simply attach a picture to the work order so technicians know which belt is needed before going to the floor to make the repairs. Additionally, documents such as a warranty or instruction manual can be added, which means users can realistically have the power of an unlimited maintenance library right in their pocket.

Barcode integration

Barcodes and a mobile CMMS are a match made in heaven. Adding barcodes to inventory and equipment is a great way to help prevent human entry errors. When using a barcode, workers can simply scan the barcode instead of manually entering the proper information into their CMMS. It only makes sense that a mobile app should be integrated into it as well. With barcoding and a mobile CMMS, workers can simply scan the barcode on their smartphone and tablet, and the information will come right up on their device. This can save a lot of time and virtually eliminate data entry errors.

Many people view being attached at the hip to a mobile device as a bad thing. But the truth is, when it comes to maintenance management, having a smartphone or tablet handy can be really beneficial. Whether it is receiving notice of a critical work order immediately, or being able to run reports on-the-fly, a mobile CMMS can prove to be a great addition to any maintenance plan.

For further information please visit:
www.mapcon.com

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More Speedor Cleanroom work for Hart

Hart Door Systems is installing a number of Speedor Cleanrooms for a major Midlands-based company that specialises in fuel containment systems, sealing solutions and advanced composites.



The order was placed by a third party company which provides a full building solution service for its clients.

Peter Cairns, sales executive for Hart in the Midlands says: "Speedor Cleanroom is ideally suited to environments where strict air leakage requirements are required and air pressure differentials need to be maintained. This is especially vital for processes where required hygiene standards are exceptional. As a result the door system is designed to work in strictly controlled environmental areas."

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Have A Tough Application For Bearings? Consider Going 'Hybrid'

Compared to their all-steel counterparts, hybrid bearings are all-round better performers. SKF's Phil Burge, Marketing and Communications Manager, explains how a hybrid bearing differs from a conventional bearing and how these differences prove beneficial when the going gets tough.

Hybrid bearings are constructed with steel rings and bearing grade silicon nitride rolling elements; in virtually every other detail, with the exception of some special materials of construction, they are no different from conventional all-steel rolling element bearings. The difference between the two types, however, becomes apparent when they are placed in service - particularly when the application throws up a host of challenges that would certainly compromise the performance and life expectancy of an all-steel bearing.

Like their all-steel counterparts, hybrid bearings come in a variety of formats, including single row deep groove ball, angular contact ball and single row cylindrical roller bearings in sealed and non-sealed versions. Standard hybrid bearings are constructed from regular carbon chromium bearing steels and the ceramic rolling elements are separated by conventionally designed cages constructed from standard cage materials. However, because of the severity of service that they are occasionally expected to endure some hybrid bearings make use of more exotic materials.

Extreme duty SKF hybrid bearings, for example, have rings made from high nitrogen stainless steel and various cage designs made from a glass fibre reinforced version of the high-performance polymer PEEK (PolyaryletheretherKetone). The combined properties of these various materials of construction greatly improve bearing performance, enabling these extreme duty hybrid bearings to run significantly longer than conventional hybrid bearings, especially in harsh conditions.

High nitrogen stainless steels are highly corrosion and wear resistant, have very high rolling contact fatigue strength and high impact toughness. Importantly, where high temperature, cryogenic or wide thermal cycling applications are concerned, high nitrogen stainless steels offer superior thermal

dimensional stability and low coefficient of thermal expansion. Compared with regular bearing steels, high nitrogen stainless steels have been shown to have more than three times the fatigue life of the former.

The glass fibre reinforced PEEK cage material is tolerant of chemically aggressive media (for example, when hybrid bearings are used in sour gas compressor applications) and retains its integrity over wide operating temperature ranges. The material is particularly stable, having low moisture absorption and resistance to ageing, and being readily moulded, it provides opportunities for the development of novel cage designs.

As well as being suitable candidates for aggressive and highly contaminated applications, hybrid bearings have proven particularly successful under poorly lubricated conditions as well as being far less prone to surface distress and surface-initiated fatigue cracks than their all-steel alternatives. Moreover, since the rolling elements are made from an insulating ceramic, no electrical path can be formed between shaft and bearing housing, making this type of bearing suitable for use in electrical machines where arc currents arising from the use of variable speed drives might otherwise cause corrugation of the bearing raceways.

In sour gas compressors where lubricants are often contaminated by the pumped media, the life of a standard bearing under such conditions can be very short indeed. High nitrogen stainless steel hybrid bearings can provide between six and ten times the service life of conventional bearings in oil-flooded screw compressors used on such applications.

Cryogenic submersible pumps that transport liquefied gases need to withstand temperatures that range from -74 °C for liquefied petroleum gas down to -253 °C for liquefied hydrogen gas.



In these cases conventional petroleum-based lubricants cannot be used and instead the bearings are lubricated by the pumped media. SKF has developed a hybrid bearing for cryogenic duties that uses a specially heat-treated variant of high nitrogen stainless steel for the rings and a specially designed flexible, single-piece glass fibre reinforced PEEK cage.

Modern chillers are equipped with centrifugal compressors that rely on hydrodynamic bearings lubricated with a mix of oil and refrigerant. To avoid diluting the refrigerant while still maintaining an oil-rich mixture to lubricate the bearings, these centrifugal compressors use oil injection and separation systems before and after the bearings. These systems can be eliminated altogether, thereby saving cost and complexity, by using pure refrigerant lubricated hybrid bearings made from high nitrogen stainless steel and using specially designed glass fibre reinforced PEEK cages.

It is easy to think that hybrid bearings have a relatively limited area of application - the prevention of electric arcing damage to raceways being most prominent. However, given the right choice of materials and designs these bearings have a much broader applications potential, particularly when those applications pose significant challenges that more conventional bearing styles would have difficulty to meet.

For further information please visit:
www.skf.com

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More Hart's Speedors in Africa

These two Hart Speedors, the high-speed environmental doors, are the latest to be installed at the Bakhresa Group's Buguruni flour mill, Dar es Salaam, Tanzania, Africa's largest flour mill.

The Speedors were installed with internal and external wind bars to cater for wind pressures from both sides of the opening. They are the result of continued successful operation of four Speedors installed in the Kurasini grain intake areas also in Tanzania.



"This is our third visit to this Tanzania and we must thank our friends at Bakhresa for their assistance and cooperation during the installation," says John Loftus, a member of Hart's export team.

Africa has also been a very successful export market for Hart in particular at international airports at Julius Nyerere Airport, Tanzania, Harare Airport, Zimbabwe, Bole International Airport, Ethiopia and Casablanca Airport. Hart has also been successful in a variety of commercial projects with more work in the pipeline.

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ATS Electro-Lube (UK) Ltd Have Added Another Product To Their Well Proven Range Of Self Contained Automatic Lubricators.

The new Jack-Luber is a fully self-contained battery powered lubricator available with either a 125cc or 250cc replaceable grease cartridge.

Grease cartridges can be supplied filled with the specific brand & type of grease type required for the application & can be changed in seconds by the user.

As the Jack-Luber is a motor-driven lubricator, it can generate up to 250psi operating pressure, meaning that it can be used with long feed lines or in cases



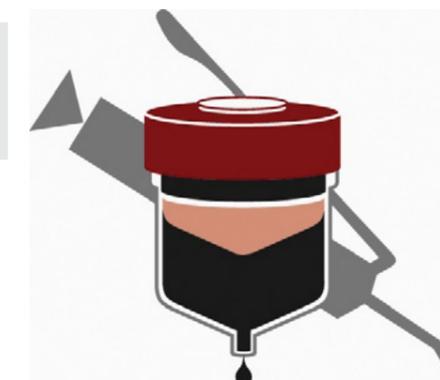
Jack-Luber Model 125 & Replacement Cartridge

a Jackscrew mechanism which reduces wear & therefore prolongs the operational life of the unit.

Once activated, the Jack-Luber runs intermittently to supply grease on the optimum "Little and Often" principle. Integral switches allow users to set the required feed rate, allowing up to 2 years operation between cartridge/battery change.

The Jack-Luber is suitable for indoor or outdoor use and is not affected by changes in temperature. In addition, the Jack-Luber is certified intrinsically safe for use in hazardous areas.

This new addition fills the gap in the ATS Electro-Lube product range, fitting between the low pressure (50 psi) Electro-Luber Gas Series and the



higher pressure (900 psi) Ultimate-Luber Motor Drive Series.

Detailed information, including demonstration videos for the entire ATS Electro-Lube product range can be found at their new website:
www.atselectrolube.co.uk

Horbury Facades Gets Creative With Nottingham's Confetti Building

Horbury Facades, part of the Horbury Group, has secured a contract to design and install the innovative rainscreen cladding system for the new Digital Media Hub that forms part of the Confetti Institute of Creative Technologies on behalf of Nottingham Trent University.

Horbury Facades, part of the Horbury Group, has secured a contract to design and install the innovative rainscreen cladding system for the new Digital Media Hub that forms part of the Confetti Institute of Creative Technologies on behalf of Nottingham Trent University.

The new building will feature the increasingly popular 'Corten' panel, which naturally weathers over time, producing a striking, oxide finish that protects the building. The natural patina, which mellows over time, creates a protective coating that provides a highly durable, low maintenance and aesthetically pleasing façade.

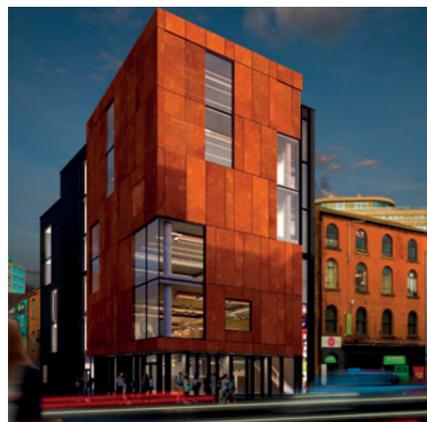
Horbury Facades will work on behalf of main contractors Stepnells Ltd, with the building due for completion in Summer 2018.

Adrian Storey, General Manager at Horbury

Facades, said: "This is an exciting contract win for our team. We have extensive experience of designing and installing facades created using Corten, which is a popular choice for use in urban and former industrial areas. We're looking forward to working with Stepnells to achieve the architect's vision for this building."

The development will see two sites at Convent and Parliament Street linked by a stunning seven storey education centre, enabling Confetti to deliver more courses to students studying for both college-level courses and degrees.

The use of Corten will complement the traditional red brick build of the adjacent buildings on Parliament street, close to the city centre. Here, part of the former Confetti building was demolished earlier in 2017 to make way for the Digital Media Hub, which is expected will achieve BREEAM 'Excellent' status.



Horbury Facades is a specialist rainscreen cladding contractor offering full design and installation services. As a division of Horbury Group, the company has experience of working with a range of materials including composite panels, high pressure laminates, terracotta tiles, steel and aluminium cassette systems.

For more information on Horbury façade installation services, visit the website www.horburygroup.com.

EZO bearing manufacturer celebrates 30 years with UK distributor

Japanese bearing manufacturer, Sapporo Precision, visited its official UK distributor of EZO bearings, SMB Bearings, to celebrate a 30 year partnership. This visit reinforces the company's long-standing relationship, and provided an opportunity for the visitors to see SMB Bearing's new premises.

Mr Kobayashi, president of Sapporo Precision, and son of Sapporo Precision founder, visited the site in September, along with Mr Aicha, the operations manager, to meet the SMB bearings team, see the new headquarters and reflect on the past 30 years of success.

"This visit was a great opportunity to celebrate the success we've had selling EZO bearings over the last 30 years," explained Chris Johnson, managing director at SMB Bearings. "EZO bearings have proved very popular with our customers, so much so that we actually had to relocate to larger premises in 2015 to house the full EZO range. We put this popularity down to the consistent quality of

EZO bearings that our customers depend on time and time again.

"For this reason, we've never been tempted to take on any other precision bearing manufacturer apart from Sapporo Precision, it just wouldn't make sense. We wouldn't find the same quality and shape consistency elsewhere. Our customers rely on EZO standards for their applications, using these bearing without feeling the need to quality check the batch."

Sapporo Precision's range of bearings covers miniature bearings, thin section bearings and stainless steel bearings. The company's EZO brand guarantees a high precision product thanks to advanced production techniques and the high



levels of quality control. These bearings are used in applications including, but not limited to, aerospace, medical, machine tools, inverters, instrumentation, food processing and robotics.

More information about SMB Bearings' full range of EZO precision bearings can be found on the company's website. Alternatively, if you would like to speak to one of the technical experts at SMB Bearings, you can contact the company's base in Oxfordshire on +44 (0) 1993 842 555.

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We live in a world of rapid change, driven by the growth of 'smart technology'. Automation components are becoming more compact, both for centralised and decentralised applications, while still delivering considerable computing power. Sensors and actuators are also getting more 'intelligent'.

Packing components into an enclosure is a science and an art. The engineer must plan the interior configuration to reduce wasted space and optimise the size of the enclosure, yet avoid issues such as over-heating or problems of future access to any of the components.

Rittal offers customers a range of solutions for the safe packing of sophisticated electronics systems, both centralised and decentralised.

As well as a huge range of enclosures in different sizes, materials and paint specs, employing the company's sophisticated Eplan software allows engineers to populate the panel in a CAD format, optimising the use of space while enabling changes to be made quickly and easily before applying them in a workshop.

Rittal "Therm" Speeds-up Climate Calculations

Component size is typically determined by the space needed for terminals, connectors, and clamps, as well as their accessibility for commissioning, servicing, and maintenance. As components get smaller, enclosure packing density is increasing. Furthermore, new functionality such as power management, networking etc, means that additional components are being put in all the time.

Paul Metcalfe, Rittal's Industrial & Outdoor Enclosures Product Manager comments:

"Reducing the size of individual components has

not had a noticeable effect on the available space within enclosures, mainly because this is largely determined by the arrangement of the DIN rails, cable ducts and other components. Components are frequently installed in groups and space can only be marginally optimised by individual components.

"We would caution that where space is taken up by smaller components, users should review climate control because higher packing densities increases the overall risk of hotspots. The good news is this doesn't have to be a laborious task because Rittal's "Therm" application performs the calculation of climate control in its entirety, providing users with appropriate and correctly dimensioned solutions."

Components in Distributed Systems

Major distributed systems are commonly found in the petro-chemical industry and conveyor systems. They employ less technically advanced enclosures to house control equipment in a separate room, however, the cost of cabling to connect to the machinery can be high.

Rittal's range of enclosures includes models with high IP ratings in sheet steel, stainless steel or plastic, designed to protect the equipment housed in it. This means that, rather than putting the control gear in a separate room, all the control gear can be next to the machine itself.

This offers cost savings around the amount of cabling needed and this type of locally-employed



enclosure distribution is often more efficient because of the specialist protection it provides the equipment against dust and oil.

In other, highly-sensitised environments such as the food industry where hygiene standards must be met, users now have a choice of both the materials used and the enclosure design, in order to prevent contaminants being deposited and simplify cleaning.

Compact Machines and Decentralisation

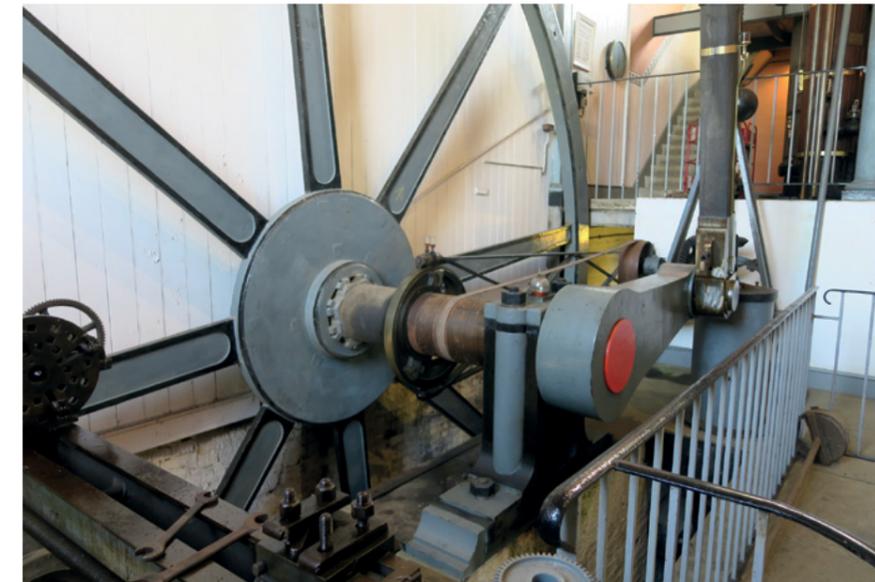
In decentralisation, the focus is around making machines as compact and centralised as possible to make it easy to commission them. Machines can be assembled as complete transportable units, however, the control technology for the machines needs to be in the right place. This can be done either by machine-integrated standard enclosures or through appropriate integration in the body of the machine.

Paul advises: "We have products, accessories and expert advisors who can advise around protection category, heat dissipation, EMC (electro-magnetic compatibility) and the corresponding installation regulations/requirements, which all have to be taken into account."

Further information at www.rittal.co.uk and www.friedhelm-loh-group.com or on twitter @rittal_ltd.

Cambridgeshire's Stretham Old Engine Receives Top Engineering Award

The steam-powered engine presented with an Institution of Mechanical Engineers' Engineering Heritage Award



Cambridgeshire's Stretham Old Engine was presented with an Institution of Mechanical Engineers' Engineering Heritage Award at a special ceremony on 24 September (please see photos attached).

Previous winners of Engineering Heritage Awards include Alan Turing's Bombe at Bletchley Park, the E-Type Jaguar and the fastest ever Concorde. This will be the 109th Engineering Heritage Award.

The engine was honoured for being the earliest, largest and most complete survivor of the Beam Engines and Scoop Wheels which kept the flood affected Fens in East Anglia drained.

Dr Colin Brown, Director of Engineering at the Institution of Mechanical Engineers, said:

"The Stretham Old Engine played a crucial role in keeping the Fens free from floods for over a hundred years. This award celebrates not just the original ingenuity of the Butterleys' engineers of the 19th century, but also to the committed team of volunteers who maintain it in such fantastic condition."

Brian Callingham, Chairman of the Stretham Old Engine Trust, said:

"We are honoured that the work of all those, who have given so freely of their time and expertise, as well as the inspiring vision of the engineers that originally developed the Stretham Old Engine, is being recognised in this way. It is a most fitting tribute to the dedication of my predecessor, as Chairman, Keith Hinde OBE and to his son, Edward, as our Engineer. This honour, we feel confident, will be a crucial element in our endeavours to recruit much-needed volunteers to ensure that the contribution the engine makes to the engineering heritage of the Fens will continue to grow."

The engine was built by the Derbyshire firm, Butterleys, in 1831 it replaced four nearby windmills. Its Scoop Wheel was used successfully for over a century to lift water from flood channels back into the river to drain the district of the Fens called the Waterbeach Level near Ely, then comprising some 5,600 acres (2,266ha). Over 60 steam engines of various types were erected in the Fens for drainage purposes between 1817 and 1850, and over 80 more from 1850 to 1926. Three beam engines

survive in the Fens, of which Stretham is the only one in Cambridgeshire and by far the largest: the other two being in Lincolnshire, but neither of these have chimneys nor complete boilers.

In 1829 Waterbeach Level Commissioners asked the Butterley Company of Derbyshire to tender for an engine to drain the district. The building was constructed by a separate contractor, at a cost of £2,050. The whole work was finished in 1831, at a cost of £2,900 for an engine of 60 nominal brake horsepower (45 kW), two boilers and a scoop wheel, making £4,950 for the complete installation. As a hard bed of gravel lay only 10 feet (3m) below the peat, no piling was necessary to support the building house on its left, and the boiler house on its right. The chimney shaft, 75 feet (23m) in height, can be seen behind the boiler house.

Entering the building through the boiler house door, the visitor will see three boilers. They raised sufficient steam to drive the huge Engine and the enormous scoop wheel that lifted 30 tons (31 tonnes) of water with every revolution from the Fen into the Old West River. Normally, two of the three would be used to supply steam with the third acting as a standby when one was being cleaned.

The Institution of Mechanical Engineers was established in 1847 and has some of the world's greatest engineers in its history books. It is one of the fastest growing professional engineering institutions. Headquartered in London, we have operations around the world and over 115,000 members in more than 140 countries working at the heart of the most important and dynamic industries such as the automotive, rail, aerospace, medical, power and construction industries.

The awards, established in 1984, aim to promote artefacts, sites or landmarks of significant engineering importance – past and present.

For further information please visit: www.imeche.org/engineering-heritage-awards

Collaboration From Concept To Construction

Collaboration is not a revolutionary concept. A Grimm's fairy tale describing villagers working together to produce a delicious stone soup has been teaching children the concept for centuries. Engineering solutions provider Boulting group, understands the importance of collaboration and that it needs to be at the heart of every project, if it is to be successful

Here, Brian Donaldson, group business development authority at Boulting Group, explains the benefits integrated project delivery (IPD) and the collaborative culture it produces, can bring to engineering projects.

In recent years, traditional ways of delivering engineering projects have become less common. Instead of contractors working separately on a particular area, new, collaborative methods such as integrated project delivery are increasing in popularity.

Integrated project delivery is a collaborative alliance which aims to integrate the best aspects of people, systems, business structures and practices to optimise the results of a project.

Each collaborators interests, objectives and practices can be aligned by using the team based approach. Using this method every individual, team or business will become equally invested, sharing risk and profit in a fair and transparent manner.

Client collaboration

The use of an integrated project delivery system means the client is also part of the team. They can ensure profit margins are determined at an early stage and understand the role and current job status of every person and company working on the project.

Target costs are often set when the project is being managed with IPD. A target cost is a realistic budget decided by everybody involved, which can take into account changes and challenges.

For the client, this often means a smoother, coherent experience. The process encourages correct behaviours and communication. The investment each contractor has in the overall project means it

is delivered to meet both the business objective and the intended budget.

Risk sharing

As every member of the project delivery group takes shared responsibility for the job, risk is also shared proportionately. Alongside transparency this means contractors, engineers and designers don't need to worry about external services being in place on time, or about any necessary changes reducing their profit.

The culture produced by the proportional splitting of risk is one of the crucial reasons for IPD's success. It brings about a communal atmosphere, which makes every member of the team feel secure. Instead of worrying about their individual roles and responsibilities, their primary concern becomes how to make the project the best it can be.

Where possible, the atmosphere can be enhanced by the use of communal office spaces. This is a popular option for many large projects as it can improve communication between teams, providing the perfect structure for collaboration.

When space restrictions don't allow for the ideal situation of shared office space, another option is to provide a common space which everybody can meet in, even if they don't work from there day to day.

Promoting innovation

Transparency can ensure the project runs smoothly and reduces the risk of going over budget. The resulting increased sense of security means every part of the project delivery group can focus on their specialism.

By giving each contractor the freedom to explore



the project, they can use their specialist expertise to ensure their section of the overall project meets client expectations.

Due to IPD's possibilities for teamwork and communal atmosphere, these specialists can also continually consult with others working on the project, ensuring each contractor is working together to maximise the potential and value of the project. In addition to this, collaboration allows for necessary changes to be made without negatively impacting other contractors.

Transparency

Transparency is a major benefit of integrated project delivery. It produces a sense of security as the involved parties have access to all information concerning the job, from equipment costs, right through to budgeting.

In addition to encouraging a pleasant working atmosphere, this approach means different contractors can work efficiently, often resulting in reduced waste and increased productivity. For example, if contractors realise they are using the same material as one another, they can order enough for both parties, potentially reducing waiting time and costs.

Integrated project delivery encourages a collaborative atmosphere and harmonious working environment, among other practical benefits. Working together in this way often leads to smoother run projects, which end up closer to budget, similar to how the villagers gained a tasty soup from a stone in the Grimm's fairy tale.

For further information visit:
www.boulting.co.uk
Twitter: twitter.com/BoultingGroup

Cost-saving Fluke 805 FC Vibration Meter bundle includes an external vibration sensor for access to hard-to-reach locations

For a limited time period, until 31st December 2017, Fluke is offering a 16% saving when purchasing a FLUKE-805 FC/805 ES bundle consisting of a Fluke 805 FC Vibration Meter, together with a Fluke 805/ES external vibration sensor. This can be found at: www.fluke.co.uk/805.



For a limited time period, until 31st December 2017, Fluke is offering a 16% saving when purchasing a FLUKE-805 FC/805 ES bundle consisting of a Fluke 805 FC Vibration Meter, together with a Fluke 805/ES external vibration sensor. This can be found at www.fluke.co.uk/805. Saving is based on the cost of the items if purchased separately. The Fluke 805/ES extends the use of the meter to crowded or hard-to-reach locations. The Fluke 805 FC Vibration Meter is a portable, multifunction vibration screening tool that provides quantifiable information on the bearings and overall health of motors and other rotating equipment; the 805 FC can share that data in real time via Fluke Connect™. It is ideal for frontline mechanical troubleshooting teams that need reliable and repeatable measurements of rotating equipment to make imperative go/no-go maintenance decisions.

The Fluke 805 FC Vibration Meter measures overall vibration from 10Hz to 1,000Hz and provides a

four-level severity assessment for overall vibration and bearing condition. It can detect peaks in the vibration signal readings of roller bearings from 4,000Hz to 20,000Hz, and use a proprietary algorithm to interpret severity to determine if the bearing is going bad. It features an infrared sensor that automatically measures surface temperature and displays it along with the vibration reading for a broader understanding of machine health, and offers a flashlight for viewing measurement locations in dark areas.

The Fluke 805/ES is an external vibration sensor with a powerful "U-shaped" magnet that is ideal in situations for which it is either difficult or impractical to use the onboard vibration sensor tip of the Vibration Meter. The 805/ES stretches to over 2m and allows measurements to be taken behind machine guards or enclosures, or in out-of-reach places where it is difficult to apply sufficient manual pressure to the Vibration Meter.

The Fluke 805 FC has a unique sensor tip design that minimises measurement variations caused by device angle or contact pressure. This reduces operator error and improves the accuracy and repeatability of quick vibration screening. The meter also provides a severity scale for both overall vibration and bearing condition readings, delivering more information than typical vibration pens.

Vibration screening is a critical part of motor maintenance, and recording trending measurement data over time, using Microsoft® Excel with pre-built templates, provides invaluable insight into long-term motor health. The 805 FC can automatically save vibration data wirelessly to Fluke Connect cloud storage so authorised team members can view all of the measurement data for each asset with the Fluke Connect app on their mobile devices before they leave the inspection site.

Fluke Connect System

The Fluke 805 FC, along with more than 20 other Fluke tools, is part of the Fluke Connect system - the world's largest portfolio of connected tools. It allows technicians to make better and faster decisions by having access to maintenance records wherever they are working. The Fluke Connect app can be downloaded for free from the Apple App Store and the Google Play Store.

Using EquipmentLog™, technicians and managers can get all their measurement data in one place to get the complete asset story. EquipmentLog history allows technicians to assign measurements to specific equipment, creating a cloud-based history of all test measurement data (e.g. vibration, electrical, infrared images) for easy access during both troubleshooting and reliability maintenance.

Technicians can also share measurements with other team members in real time with ShareLive™ video calls to get approvals for repairs or get questions answered without leaving the field.

For more information on all Fluke products, please visit: www.fluke.co.uk

Preventative Maintenance For MCCS

Preventative Maintenance Prolongs Motor Control Centre Lifespan

The Beverly Clock has not been manually wound in more than 150 years, but its clever mechanism keeps it ticking with minimal problems. In spite of this, the clock has stopped working on a number of occasions. However by cleaning, maintenance and environmental changes the clock has been kept in operation. To keep a Motor Control Centre (MCC) running, it's important that maintenance is done proactively to prevent costly downtime. Here, Pat McLaughlin, operations director of Boulting Technology, explains why preventative maintenance is so important for MCCs.



MCCs are often at the heart of a manufacturing plant, providing power for equipment across the site. However, their important role often goes unrecognised - for a long time there has been a 'buy and forget' attitude to MCCs. It is a common belief that once an MCC is installed, it can be left to run independently and maintenance is only needed in the case of a breakdown.

The problem with this approach is that an MCC fault, such as a starter failure, can lead to major downtime by causing loss of power to, or control of, plant equipment. The consequences of interruption to production can mean significant financial losses to a business. Even worse, if documentation is not kept up to date or spare parts are missing, there can be a considerable delay getting processes back up and running.

If the MCC is neglected for an extensive period of time, this can lead to a risk of catastrophic failure, which leaves companies not only with downtime, but also with a hefty investment to replace the equipment.

Life expectancy

When purchasing a new MCC, the manufacturer will specify the life expectancy, or expected obsolescence, of the equipment. All MCCs have a finite lifetime, but not all of them meet initial expectations. Typically the life expectancy is around 20 years, but in some of the worst cases where components have failed in less than two years; this is usually when a fundamental lack of maintenance and other significant factors such as a very harsh environment has dramatically reduced its life. Preventative maintenance is a key tool to ensure that the MCC's life expectancy is upheld.

In order to prolong the life of the MCC and limit the risk of breakdown, companies can enforce a Planned Preventative Maintenance (PPM) regime that involves proactive maintenance activities typically every three to six months. Incorporating a structured maintenance regime means that potential issues can be corrected before major downtime and ensures regulatory compliance.

Regulatory compliance

If an MCC is produced in Europe, it will be manufactured in accordance with EN61439 – the standard that defines specific requirements for switchgear and control gear assemblies. If it is later modified, there is a risk that the MCC may no longer comply with this standard. When maintenance involves replacing or changing components, companies need to be mindful of the regulations. Maintenance staff should check for any modifications, and ensure that documentation is up to date.

A new MCC will come with an Operation and Maintenance (O&M) manual with clear instructions on what procedures should be put in place and how to keep the MCC healthy and in-line with regulations. Companies can use this to plan preventative maintenance, ensuring that all important components are checked.

Assessing the situation

To find out the condition of the MCC, maintenance staff can conduct several checks. These can be intrusive or non-intrusive, from simple visual checks to more complex analysis.

It is important to make checks to establish the cleanliness, verify any software and check and backup the parameters on programmable devices. These parameters need to be up-to-date with records. Maintenance staff can make visual checks to look for any discolouration or burnt out equipment.



As MCCs are often tucked away, there is also a danger that vermin can be present. This can cause serious problems with cables or connectors becoming damaged or even destroyed. Maintenance staff should conduct regular checks on the physical condition of cabling. If problems are identified, steps can be taken to restore the MCC to a good condition. If problems are recurring, it is important to remove the root cause.

Restoring the MCC to how it should be is similar to taking a car in for a service.

Common maintenance activity includes cleaning and tidying equipment, cleaning air filtration systems and fans to reduce overheating and replacing the batteries of backup systems.

When a breakdown happens, it is common for maintenance to use a quick fix to get production going as quickly as possible. If previous maintenance has been done for a quick fix, this needs to be resolved by restoring everything to the manufacturer's specification.

The aim of this maintenance is to restore the MCC to its original condition. If any components show wear

and tear, these can be serviced or replaced. If there is a problem with the MCC, companies can then perform the required maintenance.

Health and Safety

MCCs generally present very few health and safety hazards, except when performing maintenance activities. It is vital that companies and their employees are aware of the hazards and take sufficient precautions to manage them. Before working on MCCs, maintenance staff should test the equipment to see if it is 'dead', follow correct procedures in the O&M manual and wear correct personal protective equipment (PPE). A risk assessment and method statement should be produced for each maintenance activity.

Intelligent devices

Smart controls on the MCC can be incorporated into preventative maintenance regimes by logging, informing and indicating the operator of important information. The operator can interpret this information to gauge how well the rest of the plant is performing, allowing for predictive maintenance across the rest of the facility. Therefore an intelligent

MCC can be used to flag up instantaneous problems in other parts of the plant, for example if a fan motor is pulling an unusually high current. This allows the operator to investigate and correct the problem before it leads to a larger failure.

Intelligent systems can also store data over a number of days or weeks, meaning trends can be formed and any abnormalities identified well before they cause an issue. This allows more focused PPM regimes to be adopted. It also allows for feedback of results of maintenance activities in that trends should return to normal once they have been completed.

Planned, periodic inspections, simple visual checks and an up-to-date record of all maintenance and modifications are imperative for MCCs. To take things a step further, companies can use intelligent devices to predict where maintenance is required elsewhere in the plant. Proactive maintenance is key to MCCs meeting the manufacturer's life expectancy. By ironing out any faults MCCs can run just like the Beverly Clock, which keeps on ticking.

For further information please visit:
www.boultingtechnology.co.uk

A FREE telephoto or wide-angle lens with a Fluke Ti300, Ti400 or Ti450 Thermal Imager

Until 31st December 2017, Fluke is offering thermal imager kits which include a free telephoto lens (FLK-TIxx0 9HZ/T2) or wide-angle lens (FLK-TIxx0 9HZ/W2) with a Fluke Ti300, Ti400 or Ti450 Thermal Imager to extend the focus and the desired viewing angle.

These thermal imagers are part of the rugged Fluke Professional Series and compatible with Fluke Connect®, enabling users to share information with others direct from the job site. The offers can be found at www.fluke.co.uk/freelens

The Fluke Thermal Imagers included in the offer all feature LaserSharp® Auto Focus which offers laser speed and accuracy when focusing on a designated target. A built-in laser distance meter calculates and displays the distance to the designated target with pinpoint accuracy. They feature a high resolution LCD touchscreen to clearly see what is being measured and to quickly navigate the menu with one hand, and feature Fluke IR-Fusion® technology with AutoBlend™ mode to detect problems faster.

The Fluke Ti450 Thermal Imager takes focusing to a higher plane with MultiSharp™ Focus. MultiSharp

Focus is a technology that rapidly takes multiple images focused from near to far and combines them to produce one image with all objects in focus. The advanced focusing system enables users to capture an automated, in-focus image of all potential targets, delivering the image clarity needed by professional thermographers and maintenance managers to provide better images and avoid costly rework. SuperResolution mode on the Ti450 increases image resolution to 640 x 480. This delivers images with four times more pixel data than normal resolution. The higher resolution enables users to see even more detail for greater analysis capability and better reporting.

The wireless Ti300, Ti400 and Ti450 are part of Fluke Connect, a system of wireless test tools that communicate via the Fluke Connect app, or Fluke Connect Assets software, a cloud-based solution that

gathers measurements to provide a comprehensive view of critical equipment status. With Fluke Connect, infrared images can be uploaded from anywhere and combined with measurement data from multiple Fluke Connect test tools to create and share comprehensive reports from the job site via email and collaborate in real time with other colleagues, increasing productivity in the field.



Information about the special FLK-TI450 9HZ/T2, FLK-TI400 9HZ/T2 and FLK-TI300 9HZ/T2 kits with free telephoto lens, and FLK-TI450 9HZ/W2, FLK-TI400 9HZ/W2 and FLK-TI300 9HZ/W2 kits with free wide-angle lens, and all other Fluke products can be obtained via the Fluke web site at www.fluke.co.uk.

NEW PRODUCT: Soft Grip Back Blow Safety Air Gun For Cleaning Inside Diameters

EXAIR's new Soft Grip Back Blow Safety Air Gun delivers a blast of air to effectively blow debris and liquids from pipe or hose inside diameters, channel, bores, holes, internal threads and other internal part features.

The ergonomic design of the air gun keeps the operator's hand in a comfortable position so it can be used for hours of continuous use without fatigue.

An array of holes on the Model 1006SS Back Blow Air Nozzle provides a forceful back facing 360-degree airflow to clear out coolant, chips and light oils from machining processes. This nozzle prevents blowing chips further into a part, tube or pipe and eliminates any safety hazard created by blowing debris out the far end of a pipe or tube. Air consumption is only 22 SCFM at 80 PSIG with a low sound level of 80 dBA. The nozzle is manufactured

with a small profile and will fit inside openings as small as 7/8". It is effective on diameters up to 4". It is constructed of type 316 stainless steel to provide durability and superior resistance to corrosion. The airflow that exits the nozzle is quiet and cannot be blocked which complies with OSHA standards 29 CFR 1910.95(a) and 1910.242(b). It is also CE compliant.

Since airflow is directed back toward the operator, personal protective equipment is recommended. Chip Shields to protect the operator from the exiting debris are available. Extension pipes from 12" to 72"



are stocked to provide necessary reach for longer tube and pipe clean out. A variety of Safety Air Guns are available including the Precision, Heavy Duty and VariBlast Compact Safety Air Gun. Prices start at \$176.

For more information visit: www.exair.com/qtr_bbsag.htm

Omega Engineering Services Ltd Awarded AS9100 Rev D Accreditation

Specialist engineering and manufacturing company named as one of the first to be awarded the updated standard.

After a year of delay and several extra drafts, the AS9100:2016 Rev D was published in September 2016. This revised version of the Aerospace Quality Management System encompasses ISO 9001:2015 and adds the QMS requirements for aerospace and defence industries (approx. 105 additional requirements). Some of the significant changes include the High-Level Structure (HLS) change. Also, there is the addition of Context, Interested-party expectations, and risk-based thinking as three of the biggest changes in the standard.

In 2014, Omega Engineering Services, added the AS9100 Rev C accreditation to its portfolio with a clear 100% external audit and has since held the certification.

Amie Hewlett, QHSE Officer, Comments:

"In August 2017 Omega Engineering Services took the step of being one of the first companies in the UK to be audited to the new Rev D standard, which included 6 'man' days of audits across the whole site encompassing design, manufacturing, purchasing and sales. Following a demanding audit schedule, we are pleased to announce that Omega Engineering Services

is fully approved to AS9100 Rev D".

AS9100 REV D Downloadable Guide

- What is the AS9100 Rev D?
- Why did the AS9100 need to change?
- Latest revisions and changes
- Process of application, review and certification
- How this standard benefits your organisation

A full guide to can be downloaded at <http://info.omega-oes.co.uk/as9100>

AS9100 Rev D facts

- OES are the 1st company in Cheltenham to achieve the new standard
- OES are the 2nd company in Gloucestershire to achieve the new standard
- OES are the 4th company in the South West to achieve the new standard
- OES are the 47th company out of 4000 in the UK to achieve the new standard
- OES are one of 535 companies worldwide to

achieve the new standard, within the 2.5% of 20,000 companies (currently listed on the IAQG website for AS9100) worldwide to be certified to the new Rev D standard

About Omega Engineering Services (OES)

Omega Engineering Services (OES) provide high quality engineering and manufacturing services to customers in aerospace, defence and other safety critical industries.

Our expertise includes power control & management systems, design and manufacture of automated test equipment (ATE), mobile test units, as well as embedded software, precision engineered assemblies and production test equipment.

We support some of the world's largest engineering companies and supply chains, dependably and flexibly delivering high quality products and services.

Omega Engineering Services Ltd is part of the Passionate About People Ltd group of companies.

For further information please visit: www.omega-oes.co.uk

Fluke Establishes A Microsite Resource To Support Data Centre Personnel

To support the smooth running of data centres, Fluke has developed a web microsite specifically targeting those running and maintaining the infrastructure.

To support the smooth running of data centres, Fluke has developed a web microsite specifically targeting those running and maintaining the infrastructure. The site provides a range of downloadable information for Data Centre Facility Managers, Contractor Services Managers, electrical engineers and UPS, HVAC, mechanical and electrical technicians. Easy contact is made possible with an expert from Fluke who will be able to advise on the best Fluke tool to solve a problem. More information can be found at www.fluke.co.uk/datacenters

Best-in-class tools from Fluke can be relied on to keep data centres running smoothly. Fluke tools can help prevent UPS, HVAC, IT equipment, and generator failure. Downtime can be minimised with planned use of Fluke thermal imagers, battery testers, clamp meters, digital multimeters, and power

quality analysers. Whether a member of an in-house maintenance team or a contractor performing maintenance, Fluke has solutions to increase the efficiency of their day-to-day tasks.

The microsite offers downloadable content, including:

- 'Data Center Solutions' – showing a plan of a data centre and suggesting checks that should be made and suitable Fluke tools for carrying out those tasks;
- 'Six essential tests to keep your UPS system running' – describing the regular testing of individual battery cells as well as the UPS system as a whole;
- 'Monitoring temperature, humidity and airflow in data centres' – a US-based application article



describing the use of a thermal imager and an airflow meter to monitor the true ambient conditions;

- 'Detecting electrical unbalance and overloads' – describing the use of a thermal imager, power quality and other electrical test tools to monitor and resolve issues.

A wide variety of Fluke test tools including those offering Fluke Connect®, the award-winning software solution that keeps users connected remotely, are covered by the documentation.

For more information about all Fluke products, please visit the Fluke web site at www.fluke.co.uk.

Rittal Cloud Computing CPD Seminars

Rittal Ltd has just launched a new Cloud Computing accredited seminar as part of its highly-respected Continuing Professional Development (CPD) series.

The seminar on Cloud Computing & Software Defined Data Centres looks at the impact cloud computing has had across the industry.

It will explore how the cloud enables better management, and improved analysis, of data, along with shared access from internet-enabled devices.

The seminar also examines how the need for greater capacity within datacentres to accommodate edge computing and the Internet of Things will lead to major structural changes within datacentres, along with new cloud computing and networking approaches. It also looks the arguments, both for

and against, the increase in size of datacentres and assess the types of workloads they are likely to support in the future.

At the end of the seminar, delegates will have an understanding of:

- Datacentre capacity
- New approaches to cloud computing and networking
- Relevant physical factors
- The need (or otherwise) for an expansion of datacentres
- Key issues and constraints of DCIM



The seminar is aimed at all levels of expertise within engineering departments, courses can be either presented at consultant or contractors offices or at Rittal's Head Office showroom and demonstration centre in South Yorkshire, Rittal's offices in Livingston or, alternatively, at Rittal's production factory in Plymouth.

Further information at www.rittal.co.uk and www.friedhelm-loh-group.com or on twitter @rittal_ltd.

New version Fluke 438-II Power Quality and Motor Analyser can also be used for inverter driven motors

Analyses electrical and mechanical performance on operational motors to extend system lifespan, without mechanical sensors

The new version Fluke® 438-II Power Quality and Motor Analyser also supports measurements for inverter driven motors. The Fluke 438-II simplifies the process of motor performance diagnosis by providing analysis data for both the electrical and mechanical characteristics of the motor while it is in operation. It uses innovative algorithms to analyse not only three-phase power quality but also mechanical power, torque, efficiency and speed, to determine system performance and detect overloaded conditions, eliminating the need for potentially costly or inaccessible motor load sensors. To find out more, and how to obtain a free firmware upgrade for an existing 438-II, visit www.fluke.co.uk/438

Using proprietary algorithms, the Fluke 438-II

measures the three-phase current and voltage waveforms and compares them against rated specifications to calculate motor mechanical performance. The analysis is presented in simple readouts, making it easy to gauge the operating performance and determine if adjustments are needed before failures cause an operational shut down.

The Fluke 438-II analyser also provides measurements to determine a motor's efficiency (i.e. the conversion of electrical energy to mechanical torque) and mechanical power under operating load conditions. These measures allow maintenance engineers to determine the motor's in-service operating power compared to its rated power to determine if the motor is operating in overloaded



condition or, conversely, if it is oversized for the application when energy may be wasted and operating cost increased.

The 438-II is part of the Fluke 430 Series II of three-phase power quality and energy analysers that provide frontline troubleshooting and long-term trending to keep equipment running smoothly.

For more information about all Fluke products, please visit the Fluke web site at www.fluke.co.uk.

Fluke 279 FC TRMS Thermal Multimeter offered at a special price for a limited time period

Combination of full-featured digital multimeter plus thermal imager enables faster, more thorough troubleshooting with a single tool.



The Fluke 279 FC allows technicians to quickly and safely check for hot spots in fuses, wires, insulators, connectors, splices and switches with the imager, and then troubleshoot and analyse issues with the DMM. By combining two powerful test tools into one, electricians and technicians can carry fewer tools and have a higher level of confidence they have the tools handy to solve problems.

The 279 FC TRMS Thermal Multimeter features 15 electrical measurement functions including AC/DC voltage, resistance, continuity, capacitance, diode test, min/max and frequency. The optional iFlex® clamp can wrap around conductors and wires in tight, hard-to-reach spaces and expands its measurement capabilities to include AC current up to 2500A. The 3.5inch (8.89cm) full-colour LCD screen makes for easy, clear viewing of images.

The wireless 279 FC is part of Fluke Connect - a system of wireless test tools that communicate via the Fluke Connect app, or Fluke Connect Assets software, a cloud-based solution that gathers measurements to provide a comprehensive view of critical equipment status - allowing technicians to record and share both thermal images and electrical measurements in real time via their smartphones or tablets and automatically upload them to the cloud. Reports can be created and shared right from the job site via email, allowing technicians to collaborate in real time with other colleagues with ShareLive™ video calls, which increases productivity in the field.

The CAT III 1000V, CAT IV 600V safety rated thermal multimeter has a rechargeable lithium ion battery that lasts up to a full work day (10+ hours) under normal conditions.

Until 31st December 2017, Fluke is reducing the recommended price of its 279 FC TRMS Thermal Multimeter from £839 to £669. Thermal imagers are invaluable to help quickly troubleshoot electrical equipment, panels and transformers but electricians and maintenance technicians often do not have access to one when they need it. The Fluke 279 FC TRMS Thermal Multimeter is the first test tool to integrate a full-featured true-RMS (TRMS) digital

multimeter (DMM) with a thermal camera in one device to speed troubleshooting. It is also a member of the Fluke Connect® family of wireless test tools allowing users to transmit results wirelessly to a smartphone and save time reporting to validate work is complete. More information about this and other Fluke Specials can be found at: www.fluke.co.uk/promotions.

For more information about all Fluke products, please visit the Fluke web site at www.fluke.co.uk.

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