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Contacts

Publisher
Michael Dominguez

Editorial
editors/contributing: Jon Barret, Christer Idhammar

Advertising
Steve Aslett
Paul Miles
Brian Simpson

Production
Tom Britten

Email
Info@engineeringmaintenance.info

Website
www.engineeringmaintenance.info

Phone
tel: +44(0)1634 731646
Fax: +44(0)1634 731644

Address
MSL Media LTD, Cobalt House, Centre Court,
Sir Thomas Longley Road, Rochester, Kent,
ME2 4BQ



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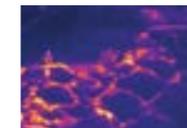
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Easy-Clean, Quick-Strip Pumps For Food And Pharma Duty

Transferring liquids in food, brewing, pharmaceutical and other similar hygienic process applications requires reliable, easy-to-clean and easy-to-maintain pumps.

Liquids handling specialists PUMP ENGINEERING offer a wide range of pumps which are ideal for these situations. For example their range of CSF CS, CSA and CSM centrifugal pumps are capable of handling capacities from 1 to 550 m³/hour at heads up to 155 metres.

CSF pumps are manufactured in investment cast AISI 316L stainless steel, with stainless steel for all wetted parts. They also feature a 6 vane impeller which ensures gentle and effective handling of the ingredients used in many food and pharmaceutical processing applications, for example syrups for soft drinks manufacturing and those containing particles or small solids.

The pumps are designed for CIP (Clean-in-Place) to ensure the absence of dead areas and feature

electro-polished finishing of all surfaces. CSF pumps are available with standard or ATEX certified motors, these are back pull-out design and fitted with a quick-release clamp to enable fast and simple dismantling.

The CSA version has an electro polished finish to 0.5µm Ra and is approved to US FDA 3A standard or European EHEDG standards, with an aseptic version available for pharmaceutical applications.

Depending on the duty CSF-CS and CSA pumps can be supplied with an internal or external single mechanical seal or flushed double mechanical seal for handling high temperature liquids, or those with a tendency to crystallise. Elastomers are available in a choice of Viton, EPDM, silicon or PTFE.



Typical applications for CSF-CS hygienic pumps include transferring syrups, sugar solutions, flavourings, salad washing, alcohols, beer, milk, oils, vinegar, fruit juices, high purity water, CIP solutions, suspensions, yeast and melted butter.

Pump Engineering Ltd, Riverside Estate, Littlehampton, West Sussex, BN17 5DF.

Tel: 01903 730900
sales@pumpeng.co.uk
www.pumpeng.co.uk

Dialight Unveils World's Most Durable End-to-End LED Linear Fixtures

Fully Sealed Wiring Compartment, Single-Extrusion Aluminum Housing & Advanced Corrosion Protection Provide Maximum Resistance against Water, Dust & Salt Spray

Dialight (LSE: DIA.L), the global innovation leader in LED lighting technology, today announced the launch of its new End-to-End Linear series providing the most durable and salt-resistant LED lighting solution on the market to replace conventional HID and fluorescent fixtures in a wide range of industrial applications, from petrochemical and heavy industrial manufacturing to food production.

Featuring a fully gasketed enclosure made from an extruded 6063 aluminum housing, the End-to-End linear series, which allows wiring on each end of the fixture, offers the most ruggedized housing for long life durability against water, salt, dust and vibration. The IP66/67-rated fixture ensures resistance to dust and water ingress with the added assurance of

UL1598/A rating that guarantees excellent corrosion resistance in marine and offshore environments. Sealed, integrated wiring compartments on each end provide easy access for installation in low-profile applications and through-wiring capability supports multiple fixture installation on a universal 120-277V AC circuit.

"Virtually every conventional linear fixture has some weak link—an access cutout in the housing or a wiring port—that is an invitation for corrosion and decay. And, once it starts, there's no stopping it. The entire fixture begins to fall apart quickly," said Michael Sutsko, Dialight's Group Chief Executive. "We've solved that problem through our world-class material science development, a seamless extruded



design and our signature high-durability LEDs and power supply to give our customers the most reliable, long-lasting LED linear on the market."

The End-to-End linear series light fixtures are available in 2-foot or 4-foot lengths to suit a wide range of illumination and mounting requirements, each with a minimum CRI of 80 for superior color fidelity. Lumen output ranges from 3,500 to 7,500 and up to 125 lumens per watt for outstanding energy efficiency and low-cost operation.

To learn more about the Dialight's complete line of factory-sealed LED linear products for industrial applications, visit: www.dialight.com.

ABB's Bristol partner quadruples warehouse space for drives and motors stockholding

ABB authorised value provider, APDS, has quadrupled its warehouse capacity, with the acquisition of a 250 square metre facility alongside its existing premises in Bristol.



The warehouse enables APDS to stock a broader selection of ABB low voltage variable-speed drives from 0.12 kW up to 500 kW and ABB electric motors from 0.25 kW up to 710 kW. Also stocked are the latest technologies including the synchronous reluctance motor (SynRM) and the WIMES-compliant motor which targets the UK water industry.

Formed in 2004, APDS has seen its business grow steadily, making it now one of ABB's largest and most successful partners in Europe.

Alan Jones, Sales and Marketing Director for APDS, says: "Our growth means that we have out-stripped our current capacity. With this new setup and a dedicated team focused on local needs, we can be even more agile as an organisation and offer greater

flexibility in the type of partnering we undertake with customers."

Alongside the expanded stockholding, APDS continues to grow its life cycle services including energy and reliability assessments. "While we are able to support drives and motors throughout their entire life cycle, an area of increasing concern for customers is how to look after the installed base. We will be using our existing facility to house our growing services and support team, who are trained in assessing the predictive, reactive and proactive elements of maintaining today's drives and motors."

The existing premises are also being used to create a larger repair shop and to install a dynamic test rig for motor and drive applications.



The authorised value provider network raises the bar in sales, support and services for drives and motor across the UK, providing technical expertise, product and service availability all under one recognisable, local branch structure. It extends across the entire life cycle of products by providing services such as installation and start-up, operation and maintenance, upgrade and retrofit and replacement and recycling.

Tel: 01925 741517
layla.hewitt@gb.abb.com
www.abb.co.uk/energy
ABB Limited, Daresbury Park, Daresbury, Warrington, WA4 4BT

Avoid the Fire Risks of Not Cleaning Kitchen Extraction Ductwork

Ventilation and extraction systems are one of the great benefits of the modern world, and nowhere more than in commercial kitchens.

Even so, like any complex system, proper maintenance is crucial. Failure to maintain kitchen extraction ductwork lays you open to perhaps the greatest hazard of all – fire.

Why the Fire Risk?

Any ventilation system will get dirty inside, since some of the pollutants it extracts will be left coating the interior. This not only affects the efficient running of the system, but also breeds diseases that range from debilitating to deadly.

A kitchen extraction system, however, is mainly ventilating grease. With this coating the filters and the inside of the ductwork, combined with the heat from the inefficient running, the whole system is a flashpoint waiting to happen.

A maintenance contract with Filtrex Environmental, a company specialising in ventilation and ductwork cleaning, will keep your extraction system clean, safe and efficient.

The Damage a Fire Can Do

If greasy ductwork in your commercial kitchen extraction system sparks a fire, it could gut not only the kitchen, but any part of the building the ductwork runs through as well. This could mean anything from a café to a shopping mall destroyed.

If the fire's been caused by your negligence, your insurance company is unlikely to pay up, and you'll find yourself heavily fined. You'll almost certainly lose your business and could end up in prison. If anyone dies in the fire, you may well face a charge of corporate manslaughter.

Professional Maintenance

An extraction system for a commercial kitchen must have a rigid maintenance schedule, with the filters taken out and cleaned daily and the whole system cleaned out and serviced anything from annually to quarterly, depending on how heavily it's used. For anything but light use, a quarterly service is needed.



If you have a highly qualified maintenance officer, they could probably handle the daily checks, but you would need to put safeguards in place to ensure it's never missed. It's far safer to have professionals like Filtrex handling the job, and under no circumstances should the full service be undertaken by anyone but specialists.

For peace of mind, a regular contract with Filtrex will ensure the daily cleaning is completed like clockwork, while the full service will leave your kitchen extraction system clean, safe and running at top efficiency.

Filtrex Environmental.
Address: 18 Burnt Mill Industrial Estate, Harlow CM20 2HS
Phone: 01279 457590
Website: www.filtrex.co.uk

Densoband Flexible Sealant at London Gateway

Densoband flexible sealant was one of three Winn & Coales protection products chosen for use in the original construction of the London Gateway at Stanford-le-Hope, Essex. The principal contractor was a joint venture between Laing O'Rourke and Dredging International.

For this phase 1 project sub-contractors Aggregate Industries applied approximately 12,000 metres of black Densoband as a flexible sealant between asphalt and concrete. This included concrete channels to take away surface water, gullies and bays.

Aggregate Industries has now just completed a new project, as main contractor, which entailed application of approximately 2,000 metres Densoband in jointing areas between asphalt and concrete on the general parking areas of the

Gateway. Miles Macadam then applied a final Hardcrete grout on this park area.

Densoband is a polymer modified bitumen strip which is approved by the Department of Transport in the Manual of Contracts 7th Edition for use in asphalt surface course joints for asphalt, and asphalt to concrete interface, as an alternative to the previously commonly used bitumen. Because water, salts, pollutants and weed seeds etc cannot penetrate the sealed joint, it remains unaffected by extremes of temperature and further deterioration.



Typical area at London Gateway where Densoband was applied as the sealant between asphalt and concrete.

Winn & Coales (Denso) Ltd
Chapel Road, London SE27 0TR
Tel: 020 8670 7511.
E-mail: mail@denso.net
website: www.denso.net

Air Operated Hoists Provide The Safe Solution Whatever The Working Environment

The J D Neuhaus Profi TI range of air operated hoists incorporate many years of design and development, and have successfully proved their versatility and reliability following installations within a wide range of light, medium and heavy duty industrial workplaces.

The major aspect of these hoists is that they have been engineered for extremes and can be safely operated even where hazardous working environments exist. Their compressed air supply, utilised for both power and control functions, does not initiate sparks, so providing an unbeatable advantage when hoists are operating in potentially explosive atmospheres. Even greater safety can be achieved by the prevention of sparks generated by static discharges or metal to metal friction contacts.

Standard versions of JDN hoists and crane systems (which utilise Profi TI hoists for lift operations) have the explosion protection / classifications and markings EX II 2 GD IIA T4 / II 3 GD IIB T4.

Increased spark protection can be achieved, which involves copper galvanisation plating of the hoist bottom block and load hooks, together with fitting brass safety catches to achieve a rating of EX II 2 GD IIB T4.

With even further increased spark protection for explosion group IIC, the hoist horizontal movement trolleys incorporate running wheels and travel gearing which are manufactured in bronze for an impressive EX II 2 GD IIC T4 rating.

The Profi TI hoist range is the workhorse of the industrial and commercial world, providing lift capacities from 250kg up to a full 100 tonnes. The operating air supply can be set at 4 or 6 bar pressure, with a standard load lift height of three metres being provided throughout. Other optional lift height requirements can also be specified and accommodated as required.

All Profi TI hoists are equipped with a top suspension hook, with optional overhead trolleys also available to accommodate lateral movement of suspended

loads. Three trolley options incorporate load traverse movements combined with precise load placements. One trolley is manually operated for horizontal movement of the suspended load. A second trolley has a manually operated reel chain mechanism for lateral load movements. The third motorised trolley provides traverse as well as load raise and lower movements utilising compressed air power.

All trolley systems can negotiate overhead rail curvatures, and can also be fitted with rack and pinion drives for safe load handling on offshore platforms and sea going vessels. For installations with overhead space constrictions, a low headroom trolley option is also available, suitable for loads up to six tonne.

The easy to use range of Profi TI hoists are 100% duty rated with unlimited duty cycles, so minimising any downtime conditions. Their compact modern design eliminates any protruding control hoses or similar external parts susceptible to damage, emphasising the suitability of the Profi range for even horizontal pulling. These standard hoists are also insensitive to atmospheric dust or humidity and withstand working temperatures ranging from 20°C to +70°C. Their patented, low maintenance vane motor brake systems ensure fail-safe starting and positive braking, while also being low maintenance as well as suitable for lube-free operation. Various pendant controls can be fitted for sensitive, single speed, multi-function or remote control operation. These design led hoists also provide strong, fast and silent operation combined with high performance, together with more efficiency and greater reliability to ensure high lifting and lowering speeds while incorporating positive sound absorption.

The compact hoist designs ensure minimum dead-weight together with suitability for installation in conditions of low headroom availability with loads



from one tonne upwards also incorporating overload protection.

Hydraulically operated versions of the JDN Profi range can also be made available, together with hoists specifically designated for operation within unique working conditions. These include JDN Profi 25 TI hoists, available with compressed air or hydraulic fluid operation, which are suitable for work undertaken in fully submersed conditions. These subsea hoists provide possibilities of enhanced weightless underwater movements of suspended loads which has included the replacement of a 45 tonne replacement rudder blade for a cargo ship while remaining berthed at sea.

Further information is available on request to: J D Neuhaus GmbH & Co. KG, 58449, Witten-Heven, Germany
Telephone: +49 2302 208-219
Fax: +49 2302 208-286
e-mail: info@jdnngroup.com
www.jdnngroup.com

Distributor Of The Year' Industry Accolade For Brammer

Brammer, a leading distributor of industrial maintenance, repair and overhaul (MRO) products, has walked away with one of the most prestigious awards at the inaugural Motion Control Industry Awards ceremony – Distributor of the Year.



Judged by a panel of motion control and fluid power industry experts, the awards were introduced to recognise and reward the achievements of individuals and organisations in the sector with the aim of celebrating innovation and excellence.

For further information please visit www.brammeruk.com

Industrial workers risking safety by washing workwear at home

In a survey conducted among senior decision makers in firms that are currently buying their garments direct from workwear providers, it was revealed that as many as 77 per cent of employees are cleaning and maintaining their professional garments themselves, which can lead to the premature deterioration of fabrics.



The research also found the majority of businesses asked viewed workwear as a disposable item that was the source of considerable hidden costs.

Commenting on the findings, Kiratpal Randhawa, UK Product Marketing Manager for Workwear at Berendsen, said: "The impact professional clothing can have on a firm appears to be somewhat underestimated, yet it is an essential business component in most industries.

Visit <http://www.berendsen.co.uk/workwear>.

Protect your investment with Rupture Disc and Safety Valve Combination

Elfab's introduction of "PRV-GARD", designed to extend valve life

Rupture discs and holders are commonly used in combination with pressure relief valves (PRVs). Even though rupture discs can be used on their own, the benefits of using both are making this solution a popular choice in the process industries. Not only can this combination extend valve life, it can also improve maintenance schedules and support with emission control, while helping to reduce long-term costs.

Due to increasing safety pressures on businesses, Elfab recognised the demand for a robust design to improve overall safety performance and sought to develop a technically superior rupture disc assembly (PRV-GARD), combining Elfab's leading rupture disc ranges with an improved holder solution that allows safe opening of a rupture disc when installed before a pressure relief valve. With its increased face to

face holder design, it ensures that full opening after burst is achieved, eliminating the risk of the disc protruding the holder; a significantly important factor when using a rupture disc and PRV in series.

In addition, the valve life is extended with the use of a rupture disc and holder in situ as using both helps to extend and isolate the contained media from the safety valve, allowing customers to benefit from cost savings in purchasing less exotic materials for the valve. Using our rupture discs in combination, it will assure a high quality operation and support with SIL ratings.

Using Elfab's new and improved combination design will not only improve maintenance schedules and support with emission control, it will increase overall safety performance and prolong valve expectancy.



For those applications that require additional valve protection, Elfab will work with you to achieve a practical solution.

Elfab Limited, Alder Road, North Shields, Tyne & Wear, NE29 8SD
United Kingdom
Tel: +44 (0)191 293 1234,
E-mail: deborah.watson@elfab.com
Website: www.elfab.com

High Performance Seals For Challenging Oil & Gas Environments

Dichtomatik Ltd, an approved supplier for the DuPont™ range of high performance O-ring seals and gaskets, has extended their stock range of sealing components, including specifically designed items for the high pressure / high temperature (HPHT) conditions as encountered in the demanding oil and gas production and development environments.



High performance seals such as Viton® fluoroelastomers have been used in extraction, refining and upgrading industries for over five decades.

Typical installations have successfully solved critical sealing problems where elastomers such as nitrile or EPDM have failed to provide an effective long-term sealing performance. Later developments have seen the introduction of DuPont™ Kalrez® perfluoroelastomer parts which can withstand

operating conditions involving attack from a range in excess of 1800 chemicals, solvents and plasmas, even where incorporating working conditions up to 327°C (620°F) are utilised.

Viton® outlasts nitrile rubber and other general-purpose elastomers and is ISO 9000 registered worldwide. The ability of this product to withstand both high heat and low temperatures as well as attack from aggressive fuels and chemicals, makes it an ideal medium for the production of protective

coatings as well as O-rings, together with gaskets in a wide variety of custom shapes and sizes. This proven versatility ensures that user customers can utilise longer maintenance intervals for production processes, ensuring budget reductions particularly for down-hole applications which can involve particularly hard access conditions.

The Kalrez® parts are particularly suitable for HPHT seal applications, providing long-term performances over a wide spectrum of oil and gas industry working requirements. These perfluoroelastomer (FFKM) parts are highly resistant to aggressive chemicals and solvents, including sour multi-phase fluids. O-ring seals retain high levels of elasticity and recovery, even after long-term exposures at elevated temperatures. The Kalrez® parts for HPHT down-hole environments also provide outstanding rapid gas decompression (RGD) resistance. In fact, rigorous third party laboratory testing for RGD resistance have recorded Kalrez® 0090 AS568-312 O-rings with the highest possible rating of 0000 per the NORSOK M-710 Rev 2 standard.

The performance benefits that have been achieved by the DuPont™ range of products have also extended the MTBR duration from days for some installations to months and even years for other specific applications. These results ensure considerable savings on site downtimes and loss of production, together with savings on manpower costs as plant repair times can be drastically reduced as well as loss of process products through leakages resulting from sealing failures.

Further information is available from:
Dichtomatik Ltd, Donington House,
Riverside Road, Pride Park,
Derby DE24 8HX
Telephone: 01332 524401
Fax: 01332 524425
e-mail: kalrez@dichtomatik.co.uk
www.dichtomatik-kalrez.co.uk

ABB identifies 30 technical challenges facing users of VSDs in HVAC applications

Two decades of research reveals the most common misconceptions and challenges facing consultants, OEMs, systems houses and facility managers when using variable-speed drives within the HVAC sector.

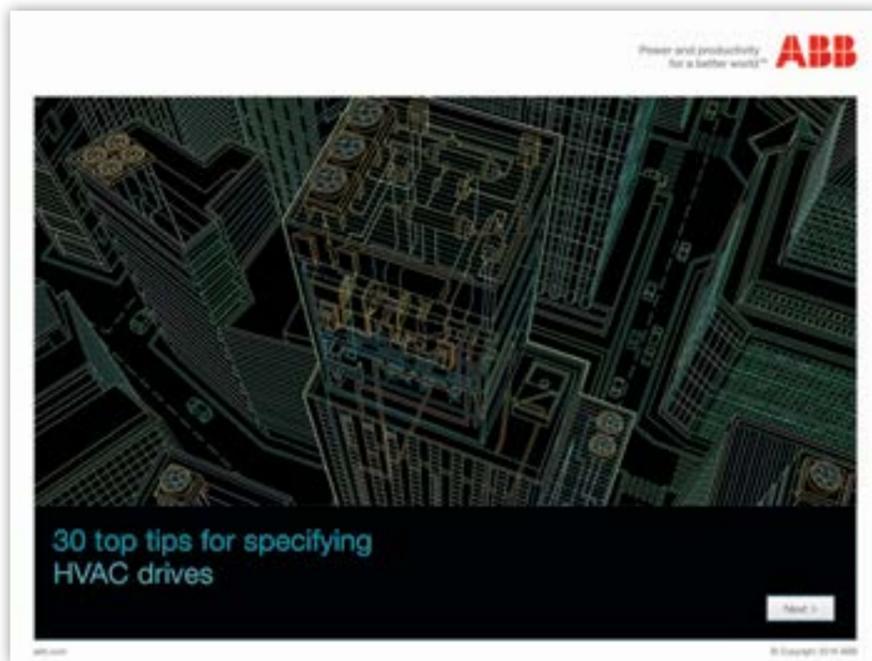


ABB is addressing some 30 technical challenges facing users of variable-speed drives (VSD) within the building services sector. The challenges affect, to varying degrees, consultants, OEMs, systems houses, facility managers and end-users. As such, ABB plans to target the relevant challenges to each customer type, over the coming months, before collating all 30 by way of a top tips eBook.

The identified challenges are the results of over two decades of VSD installations throughout the building services sector. They are based on feedback from customers, observations of third-party installations and changes to legislations, regulations and standards.

"What has become clear is that not all drives are the same," explains ABB's UK manager for HVAC drives, Carl Turbitt. "This is partly due to advances in hardware and software which means that today's drives are very different to those that were written into specifications several years ago."

For instance, today's heating, ventilation and air conditioning (HVAC) applications can be driven with a variety of motor types from electronically commutated motors (ECMs), permanent magnet motors (PM), synchronous reluctance motors (SynRM) and induction motors. Yet users need to be extremely careful when selecting which type of motor can be used for their application.

ECMs, for example, are brushless DC motors that function using a built-in inverter and a magnetic rotor, and as a result are claimed to achieve greater efficiency in air-flow systems than other kinds of AC motors. The motors have a long life and are extremely quiet. However, they can be costly to buy and while the high efficiency offered by ECMs may be suitable for some applications, it is essential that the right motor technology is selected if unforeseen problems with harmonics, catching spinning loads and power loss ride through are to be avoided.

The cost-effective SynRM, for example, offers the same efficiencies as ECMs but without the

mentioned issues. A SynRM controlled properly in a well-designed system can achieve the specific fan powers, whilst being controlled by a traditional VSD that then brings all of the advantages associated with that drive such as: improved harmonic mitigation, adequate power drip ride through, fieldbus connectivity and built-in control features to enhance the application.

"ECMs, at smaller ratings, are more compact and their efficiencies make them attractive to OEMs," notes Turbitt. "But above 11 kW, they are too big to fit fans. Also at higher powers, heat losses cannot be easily dissipated within a fan's hub design. By contrast, using a VSD and motor package in these higher powers avoids these issues and brings a host of other important benefits such as harmonic mitigation, the ability to catch a spinning load etc."

Among some of the other considerations when selecting a drive is that not all harmonic mitigation is the same, not all drives are right for outdoor use and not all drives achieve the EMC regulations when connected to a motor.

ABB has addressed many of these challenges by incorporating hardware and software changes in its new ABB HVAC drive, ACH580 - a variable-speed drive dedicated to the HVAC sector.

For help with any technical terms in this release, please go to: www.abb.com/glossary

Tel: 01925 741517
layla.hewitt@gb.abb.com
www.abb.co.uk/energy
 ABB Limited, Daresbury Park, Daresbury, Warrington, WA4 4BT

Andrews Chillers Launches New Compact Low Temperature Heat Pump Chiller

Chiller hire specialist Andrews Sykes has this month (July 2016) introduced a new, versatile, low-temperature 100kW heat pump chiller.



Its compact design, encapsulating all components in a narrow robust frame, will enable Andrews Chiller Hire to achieve installation in hitherto inaccessible places without the need for extended external pipework. This makes the new 100kW LT/HP one of the most economical solution for hiring, operating as a standalone system or to bolster the effectiveness of in-house plant.

Where precise temperature fluctuations need to be maintained a heat-pump is often the ideal solution as it acts as regulator, switching automatically from the heating to cooling process. The new Andrews Chillers Hire 100kW LT/HP heat pump with its advanced engineering technology achieves a nominal heating duty of 115kW enabling it to produce hot water on demand, whilst also having

the capability to reduce temperatures to as low as minus 15°C courtesy of a 100kW nominal cooling duty.

A Digital Controller provides easy programming of the minimum and maximum temperature settings for smooth cyclic operation. To support the growing requirements of facilities managers Andrews ensured that the controller is compatible with modern BMS (building management systems) for remote monitoring.

Developed over a number years, the new 100kW heat pump low temperature chiller is one of the most cost-efficient and environmental friendly designs currently available. It uses R410A gas, a cost-saving refrigerant that does not contribute to ozone

depletion. Also, use of multi-scroll compressors aid operation efficiency enabling users to benefit from low power consumption.

Since the new Andrews Heat Pump is programmed to automatically switch operating cycles from heat to chill mode depending on prevailing temperatures the 100kW LT/HP unit is ideal for use with datacentres, care-homes, hospitals, food and beverage producers, manufacturing industries as well as the events market for ice rink applications, controlling indoor temperature of structure with no heating or air conditioning system.

The 100kW LT/HP unit is the latest addition to an extensive fleet of chiller hire equipment available from Andrews Sykes which operates out of 25 depots strategically located to afford quick access to any UK location. Customers also benefit from a 24 hour, seven days a week, 365 days a year contact and support service. It is this level of customer commitment that ensures Andrews Sykes continues to expand on a loyal customer base.

For any organisation struggle to maintain temperature control of process or building a call to Andrews Sykes Hire Freephone number 0800 211 611 will ensure an immediate response.

Andrews Sykes Hire Limited
 Chiller Division, Unit 54 Gravelly Industrial Park, Tyburn Road, Birmingham B24 8TQ

Tel: 0800 211 611
 E: s.salescentre@andrews-sykes.com
 Web: www.andrews-sykes.com

Training for Success

Increasing productivity in a manufacturing environment poses many challenges in a world where technology and automation is advancing at a rapid pace coupled with the ongoing challenge to lean processes and practices.

To succeed in this environment, and maintain competitive requires an efficient approach to managing skills.

Inadequate skills management can not only have a significant impact on the day-to-day running of a business but be a blocker to growth, innovation and technological advancement.

A key responsibility of the maintenance manager is to ensure the agreed workload is completed effectively and in the most cost-effective manner and ensure that resource is available to meet current and future requirements with the right skills & knowledge, available in the right place at the right time.

To overcome these challenges they must gain the best possible understanding of current skill requirements and likely future skills needs allied with

an ongoing supply of people with appropriate skills.

The desire to review skills plans may be as a result of requirements to improve business performance, as a response to external pressures, to meet future business needs or simply to ensure that current business plans can be implemented.

Bridging the Skills Gap

Skills shortages occur when organisations cannot recruit sufficient people who are appropriately qualified, skilled or experienced to fill the vacancies they currently have or forecasts for future demands. Skills gaps occur where employees do not have all the skills needed to perform the tasks required.

Below: Figure 1.0 Example Technical Assessment

This may arise to new technology or equipment, new recruits lacking specific or general industry experience.

Skills under-utilisation may arise where due to business or organisational constraints staff are unable to fully utilise new or existing skill fully.

Staff must also demonstrate the values and beliefs of the organisation by conducting themselves with the right behaviours and attitude and committing to the culture of the organisation.

Ensuring the business is future fit may require consideration not just at an individual level but at a value stream, factory or enterprise level.

A number of questions must be asked to gather relevant data on resource requirements:

- How many staff are required?
- What skills/ knowledge/ competencies are required?
- What skills are core and what can be outsourced?
- What is the forecast for technological changes that will impact on resource and skills?
- What is the most effective organisation to improve efficiency?
- What system changes can be made to optimise resource and share knowledge?

Once the answers to these questions are understood, then building maintenance skills as a solid foundation is a key next step. To avoid a one size fits all approach to training a robust technical assessment process will ensure that needs satisfy identified skill gap priorities.

Skills Assessment

Finding out where to start and how best to invest in employee development requires a clear insight of organisational and individual needs. At high level this can be achieved by:

- Conducting a thorough and validated assessment of skills.
- Gathering an inventory of plant and process equipment requirements.
- Quantitative and qualitative assessment of performance issues
- Reviewing and interpreting employee and team needs.
- Review of current Key performance metrics

Navigating through these points will identify leading contributors to reduced performance and provide a thorough understanding of the skills gaps to close.

When conducting an assessment of skills, especially if this is in a test environment it is important that this is combined with a low-pressure interview/ discussion with employees. This critical conversation will provide the foundations for identifying root cause of skills gaps and aid in the interpretation of overall assessment results.

Author Bio

Mick Saltzer is Director of Consulting Services for Advanced Technology Services www.advancedtech.com based in the UK.

He is a Chartered Engineer Fellow of IMechE, with a first degree in Mechanical Engineering and a Master's Degree in Asset Management and former UK professional of the year.

He has over 25 years' experience as a Maintenance leader and Global Consultant, auditing, benchmarking and leading change management and Maintenance Excellence Programmes across Industry.

Developing individuals

No two employees will have the same skillset or work experiences, so why should they have identical development plans?

The process of Skills Gap Discovery reviewing assessment findings will provide each employee an individual learning plan tailored to their needs. This is an efficient way to manage resources and build engagement. Once training solutions have been identified conducting an assessment pre and post training will provide technicians with visible evidence of their progression and provide management assurance that skill gaps have been addressed.

Creating a personal development plan has a number of advantages:

1. Formalises training and learning processes and develops staff in line with business and individual needs.
2. Supports succession and manpower planning.
3. Shows a commitment from managers to their staff.
4. Leads to greater job satisfaction and motivation.

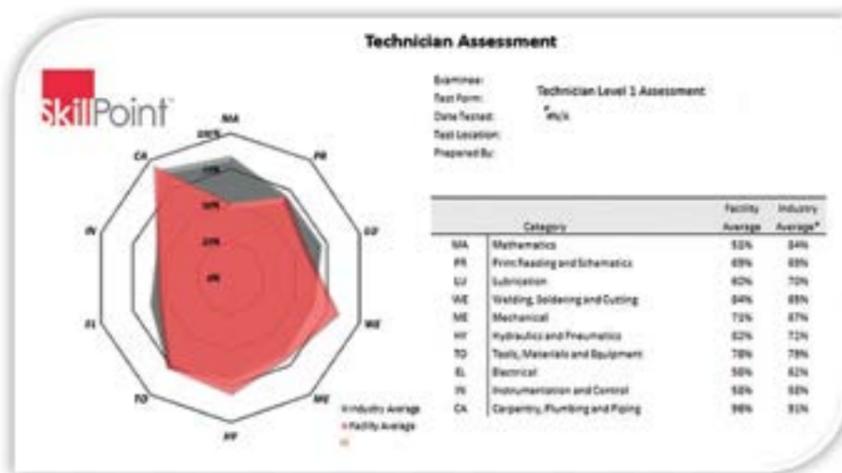
A development plan enables managers and staff to discuss, prioritise and put in place practical actions to ensure on-going development for each member of staff.

The Manager's responsibility is to:

1. Agree the content of the plan with the employee.
2. Ensure staff are clear about expectations so that there is now misunderstanding as to what is expected.
3. Conduct regular reviews and feedback to staff on performance, there should be no surprises at the end of the year.
4. Provide active support to help staff to fulfil all requirements of the plan.

The Employee's responsibility is to:

1. Ensure they are clear about what is expected.
2. Take responsibility for meeting the expectations.
3. Seek and use feedback to improve performance.
4. Seek any help needed to ensure success.





Left: Figure 2.0 Skills and Resource improvement Cycle

- Increased confidence, independence and satisfaction of employees
- Flexibility and versatility of workshop to take on new and broader tasks
- Proactive and cost effective preventive and corrective maintenance

Conclusions

Creating a culture where staff take ownership, resolve problems with novel and permanent solutions first time and are fully engaged in delivering maintenance excellence is a vision that many organisations aspire to but will not be achieved unless there is a robust foundation.

To be successful in the long term the ownership of the plan must be with the individual employee.

Building and retaining competency

Training whether provided in classroom, on line, or hands will provide vital preparatory learning but must be combined with practical application and coaching in the workshop. Typically, the training element will only represent 10% of the learning process with the remainder coming from a combination of experiential learning with colleagues and on the job application to reinforce skills.

Too often skills assessments are conducted but lack follow up in delivery of training resulting in frustrated and disengaged staff. A robust approach is required to planning, reporting and delivery of training and tracking engagement and ensuring it continuously aligns with business requirements (see Figure 2.0)

Improving Performance

It is imperative that leaders in the business understand the approach to maintenance and the

key requirements of a well-defined strategy and how this can influence business performance.

Most mature businesses have established performance metrics based on specific measures: such as availability, downtime, output, employee engagement and retention. When establishing a skills improvement programme and building the business case it is important to know your critical parameters when determining how your investment will be returned. Productivity gains typically far outweigh training investment and be realised at technician level due to a number of improvements such as:

- Greater understanding of systems and equipment
- Improved understanding of hazards for reduced accidents and incidents
- Efficient troubleshooting and diagnostics
- Increased process knowledge
- Reduced equipment failures through right first time repairs
- Improved capability for reading drawings and schematics to locate problems

Establishing a formal means of assessing capability and a robust process for managing resource and skills is a great way to start to build this foundation.

Building a culture of continuous improvement and devolving responsibility for problem solving and issues in the workplace will no doubt increase productivity, enhance job satisfaction and engagement. However, to work effectively this must be accompanied with necessary training and resources.

With the right assessment and training processes in place it should be possible to accelerate the adoption of the desired culture and broaden the market for resources and hire based on attitude rather than skills and close the gap with effective training and development.

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A new 104-page Fabreeka Vibration Control core products catalogue is now available, giving designers, plant and operations managers a comprehensive, technical overview of products to solve vibration and isolation problems.

Since 1936, Fabreeka has been providing these solutions to a diverse customer base across in factory and plant situations across numerous end-markets.

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Purchasing from Labfacility could not be easier, with the recent launch of a new website providing customers with the ability to purchase from stock for immediate worldwide despatch. There are monthly product launches and regular online promotions.

Make your next purchase at: www.labfacility.com

Leak-Free, Mag-Drive Pump Range Features New Models

The benefits of using sealless, mag-drive (magnetically driven) pumps in extreme fluids handling applications are well documented. Quite simply, where fluids handling applications involve hazardous, hard-to-handle chemicals, mag-drive pumps are designed to provide reliable, leak-free operation, with no environmental emissions, no double mechanical seal costs and no need for seal-support systems.

The Finish Thompson ULTRAChem (UC) Series of ETFE lined centrifugal pumps is a good example of durable and exceptionally well-engineered range of leak-free pumps with new options added which further extends the overall performance envelope of the range.

Available from MICHAEL SMITH ENGINEERS, the 3 new models are; The UC1518L, a low flow version of the standard UC1518 which is ideal for applications requiring a higher heads (up to 69 metres) at lower flows (1.13 to 8.6 m³/h), the UC2110 is a 4-pole configuration (with a 2-pole version also under development) and the UC6410 an exceptionally powerful option designed for flows up to 329 m³/hr.

Finish Thompson UC pumps combine a tough ductile iron casing with a Tefzel (ETFE) lining to ensure outstanding corrosion resistance and feature powerful neodymium magnets which drive the impeller through a carbon-filled PTFE lined barrier for dependable, leak-free operation.

In addition, a range of features optimise the reliability, efficiency and performance of these pumps to ensure minimal wear on components, lower running costs and extended periods between routine servicing. For example, a Dri-Coat silicon carbide bearing / shaft option prevents catastrophic failure in the event of short-term dry-running. Also, a two-piece dynamically balanced outer drive magnet with multiple pole options matches drive to motor power for greater efficiency.

This outer drive magnet incorporates Finish Thompson's "Easy-set" mounting system so that the drive magnet can be fitted to the motor shaft without having to measure the magnet set-height and ensures a perfectly set magnet thereby removing a potential cause of misalignment and so improving reliability.

Other features include a Kevlar reinforced barrier which reduces the air gap between driven and driving magnet and so maximises magnetic power to transmission. Using Kevlar for the barrier reinforcement enables maximum working pressure to be increased to 300 psi (20.7 bar).



FTI ULTRAChem pumps are an ideal choice for extreme pumping applications which typically occur in chemical manufacturing, blending and distribution, water treatment, plating and surface treatment applications, paper mills, fume scrubbers and other similar challenging situations which demand robust and reliable leak-free pumping.

Further details on the range of FTU ULTRAChem pumps can be found at:

<http://www.michael-smith-engineers.co.uk/products/finish-thompson/rotary-centrifugal-pumps/etfe-lined-centrifugal-uc-series>

Tel: FREEPHONE: 0800 316 7891
Email: Info@michael-smith-engineers.co.uk

HENKEL PRACTISES WHAT IT PREACHES

Henkel's main manufacturing plant in Düsseldorf is criss-crossed by 18 kilometres of pipe bridges and 300 kilometres of pipelines. Over time, sections had become corroded and their repair was subcontracted to the company Xervon.



supplier in the market that is certified by the three inspection authorities and this gives our customers the assurance that the system really delivers what it promises."

Huge potential

Xervon, one of a growing number of select service providers that make up the Henkel Certified Applicator network across Europe, underwent an extensive qualification process to achieve the status. The company's Managing Director, Thomas Peter Wilk, added: "I consider the LOCTITE® Composite Repair System to be an excellent solution and our joint project at Henkel's Düsseldorf site is an excellent way to demonstrate its effectiveness to industry."

The LOCTITE® Composite Repair System is now being used widely in refineries, petrochemical plants, power plants and water treatment systems. Core applications are in the oil and gas industry where the system can be used in all upstream, midstream and downstream areas. There are currently a high number of production plants across the world that have reached an age when they require general overhaul and this has prompted considerable interest in the capability of this unique LOCTITE® repair system.

"That's why it was so important to apply the system in our own manufacturing plant in Düsseldorf," concluded Henkel's Bernd Hammer. "It gives us an easily accessible reference site for potential customers and also allows us to monitor its effectiveness over the long term. This way everyone can see for themselves the level of quality this repair provides."

Visit: www.loctite.co.uk

In order to repair leaks quickly, safely and sustainably Xervon used Henkel's recently introduced LOCTITE® Composite Repair System and, in so doing, created a perfect reference site for the process.

This innovative system allows corroded pipes to be repaired without interrupting operations, avoiding the high costs associated with unplanned shutdowns. It effectively eliminates the need for pipe sections to be replaced and substantially extends the lifetime of the repaired pipework system.

"Our target is to extend the service life of pipes by 20 years and we are confident the LOCTITE® Composite Repair System will last far beyond that," commented Carsten Sperlich, who heads the technical infrastructure department at the Düsseldorf site.

How it works

The first step is cleaning. This is done by sandblasting the surface of the defective pipe section to a cleanliness level of SIS SA 2.5. The blasting also produces a roughness of 75 micrometres peak-to-valley height in the steel

surface and the resulting surface texture ensures physical anchoring in addition to the adhesive bonding with the coating material.

Next, LOCTITE® SF 7515 is applied as a short term corrosion inhibitor to prevent flash rust. The pipe is then wrapped with several layers of the high strength, glass-carbon fibre tape, LOCTITE® PC 5085, which has been impregnated with the two-part epoxy resin, LOCTITE® PC 7210. Finally, several layers of topcoat, LOCTITE® PC 7255, are applied as corrosion protection.

The repair system has been certified by DNV CL in accordance with the global quality standard ISO 24817. This standard defines the criteria for the use of composite systems in petrochemical, oil and gas industries. The method has also been approved by Lloyds Register - in conformity with ASME PCC-2 standard - and by TÜV Rheinland.

"Certification is a very complex procedure," advises Henkel's Bernd Hammer, Global Market Development Manager, Adhesives Technologies, for Oil & Gas and Refineries. "We are the only

Machine Sentry – Condition Monitoring Made Simple

AVT Reliability® are pleased to announce further developments to Machine Sentry® its unique condition monitoring system.

Machine Sentry® is a revolutionary new approach to condition monitoring that offers a cost effective solution supported by on-demand high level analysis support. Machine Sentry® is simple to use, and includes an automatic fault diagnosis assistant that helps identify potential issues with rotating equipment. Machine Sentry® integrates all condition monitoring techniques and watchkeeping data into a Condition Based Maintenance (CBM) solution to provide effective maintenance planning and reporting.

Machine Sentry® comprises the modular internet hosted Machine Sentry® Software Suite which integrates a range of condition monitoring techniques. Machine Sentry® Mobile sensor

(Patent Pending) is a wireless, intelligent tri-axial vibration and temperature sensor which connects via a Bluetooth® enabled PDA to the Machine Sentry® software. Laboratory oil analysis data is automatically mapped and integrated into the Machine Sentry® database. Watchkeeping, action tracking, thermal image and other process measurements can be logged directly into the PDA for upload. The integrated Fault Diagnosis Assistant acts like a Level II analyst, warning of potential problems and suggesting verification procedures to confirm. The Fault Diagnosis Assistant algorithms have been developed by AVT Reliability's own team of vibration experts using thousands of hours of vibration data coupled with extensive field experience.



Machine Sentry® can be used either as a stand-alone tool, or alongside an existing enterprise system (e.g. SAP, Maximo, PEMAC, etc). All Machine Sentry® users have access to the AVT Reliability® team of condition monitoring experts which can be used either on a permanent basis or as trouble shooting consultants as and when needed.

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Online Vibration Monitoring To Avoid Costly Breakdowns

Test Products International are adding to their existing range of Condition Based Maintenance instruments with an online monitoring system and vibration analyser called Smart Vibration Monitor.

The system is easily fitted to your existing rotating machinery, e.g. pumps and motors to provide an early warning of machine failure. Three key features distinguish Smart Vibration Monitor an innovate device:

- Ease of installation / use
- Low cost
- Standalone operation or integrated to your factory management software

Smart Vibration Monitor is DIN rail mounted and available with four, or eight, channels of accelerometer input, together with temperature and tacho inputs. These have the part numbers of 9034 and 9038 respectively. Using the supplied monitoring software it is straightforward to set vibration alarms relevant to your machine for each of the accelerometer inputs. The analyser can be used in various ways but in its simplest form is installed as a standalone system with alarms configured to either four or eight relay outputs. As standard Smart Vibration Monitor is also equipped with a 4-20mA output for each accelerometer input - making it simple to connect to existing monitoring systems.



If a laptop/PC is connected via USB cable up to 64 Smart Vibration Monitor modules can be monitored and vibration levels displayed on screen. The PC connection also permits more detailed vibration analysis if required with up to 51,000 line FFT, (frequency spectrum display).

By subscribing to TPI's optional DataDecypher cloud based service all installed modules, (and measurements from other TPI vibration analysers), can be monitored, trended and analysed from a web browser interface.

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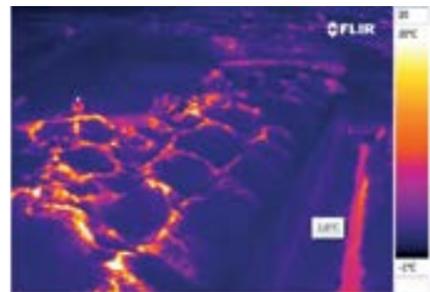
Thermal Imaging Protects Biofuel Stock Piles

The storage of large quantities of organic material always carry the risk of spontaneous combustion and fire.



With Europe's commitment to bioenergy through initiatives, like the Renewable Transport Fuel Obligation, this is a growing problem. For energy producers in this sector, such an outbreak is not only a major health and safety issue but also one that involves loss of raw material and production downtime.

Thermal imaging has already proved its value in securing wide-ranging critical infrastructures against fire and intrusion and is now becoming established in the renewables sector too. A good example is a Swedish energy provider that has minimised its risk with the installation of FLIR A-Series thermal imaging cameras from the company's Automation & Industrial Safety Division. For more information go to www.flir.co.uk/automation/content/?id=65833



Söderengi produces both heat and electrical power by burning biofuels and recovered fuels. Its output provides district heating to a large area of Stockholm and sufficient energy to power 100,000 homes. At its fuel terminal, just outside the city, forestry waste and wood chips are stored in massive piles. In common with many other biofuel producers, it relied on visual monitoring and temperature probes to detect elevating temperatures and prevent fire.

The full picture

One of the main problems associated with this method was the cost of the man hours it took to do the job thoroughly and reliably. Also, a probe only provides spot temperature measurement, it does not enable the inspector to see the thermal profile of the entire heap of organic material. So, in 2015, the company decided to explore a more efficient detection system, one that monitored the stock piles continually and generated alarms before the situation reached a crisis point. The goal was also to gain insight of how spontaneous fires develop, in order to be better prepared.

The tender was won by Termisk Systemteknik, a FLIR distributor that specialised in integrating fire prevention and detection systems for indoor and outdoor use. One of its flagship products is TST Fire, an early fire detection system that continuously analyses the thermal camera stream in real time and generates an alarm when a pre-defined temperature threshold has been exceeded. Through sophisticated video analytics, the system is also able

to minimise false alarms, such as vehicles moving in the field of view.

To monitor the entire eight-hectare biofuel site, twelve fixed FLIR A615 automation cameras were specified and Termisk was able to use the existing lighting infrastructure for the installation. This model of camera was selected for its proven reliability and high resolution which, in turn, allowed the number of units needed to scan the whole area to be reduced.

The result was a very economical installation, not just because that fewer cameras were needed but also the FLIR cameras were able to perform multiple applications.

The TST Fire system with integrated FLIR cameras can also be used to detect people both from a security and safety perspective. The benefit of using thermal imaging for this purpose is that it can monitor the scene during the day and night, without the need for illumination. The technology is also unaffected by the harshest weather conditions.

Better fuel management

Fuel management at the site is a complex task as different types of biofuel are transported via rail or ship according to customer need. FLIR thermal imaging can help in this regard too by monitoring the temperature of the fuel. For example, the thermal information can result in one fuel being given shipment priority over another to reduce fire risk.

Claes Nelson of Termisk concludes: "The information from the FLIR cameras is continuously combined with wind, temperature and precipitation data from the weather station. The system allows the operators to see how long certain types of fuel can be stored and this is invaluable information as it allows them to work much more efficiently."

FLIR Systems Ltd
Tel: +44 (0) 1732 220011
Email: sales@flir.uk.com
Web Site: www.flir.com

SPM Instrument UK Hosts International Management Meeting

On the 20th to 22nd of June, Manchester based condition monitoring specialist SPM Instrument UK Ltd. hosted a meeting with the CEO of SPM International and Managing Directors of its fourteen subsidiaries in Europe, USA, Singapore, and India.



The biannual SPM Management meeting is an integral component of the SPM International corporate structure and an important part in setting the course for the further development of the Group and its activities. The meeting is an itinerant event which the different SPM companies take turns organizing. This time, SPM Instrument UK was chosen to host the meeting, held at the Hilton in Manchester and rounded off with a social event at the Lakeside Hotel & Spa in Newby Bridge.

This year's Management meeting was a follow-up after a period of intense activity in 2014 and 2015 when SPM Instrument launched multiple important condition monitoring products to the worldwide market. Senior management colleagues from all SPM subsidiaries attended the event to reflect on the past couple of years, discuss future strategies and develop a strong business plan for the coming years, enabling the Group to unify sales and marketing efforts.

'In a global, competitive market, it is essential of course that business opportunities are recognized and acted

on. Our product portfolio is stronger than ever and will continue to develop as we align innovation efforts with business strategies. The Management meetings are an important and much- appreciated opportunity for us to focus on our joint development and continued growth in the markets where the Group is active', says Stan Jackson, Managing Director of SPM Instrument UK.

In today's competitive climate, many industries are under pressure to continuously reduce operating costs and improve the cost effectiveness of their production. A condition-based maintenance strategy with a well-managed condition monitoring program can be a crucial piece of that puzzle. Yet, the condition monitoring industry is largely immature.

'As a leading condition monitoring technology and services provider, SPM Instrument is in a position to offer the most cost effective solutions with the latest technologies available. I believe that it is very important that SPM continues to lead the way, not only in product and technological development but also that SPM

keeps and maintains the core and strength of a very successful, family-owned business', Stan Jackson says.

SPM Instrument is the inventor of the SPM HD® shock pulse technology for condition monitoring of industrial machinery. In 2015, this revolutionary technology was joined by HD ENV®, a new groundbreaking vibration monitoring technology based on the same patented algorithms for digital signal processing. Together, these technologies offer a complete condition monitoring solution for typical machine problems - such as bearing and gear damage, unbalance or misalignment - providing forewarning times considerably longer than those offered by other monitoring technologies.

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INTELLINOVA parallel MB



Stand-alone or Modbus integration

Intellinova Parallel MB is an excellent candidate for first-line condition monitoring. Run as an offline unit, Intellinova Parallel MB can be connected for example to an alarm light, siren, circuit breaker or other external device, alerting for fault symptoms such as gear and bearing faults, unbalance, poor lubrication etc. In case of high readings, follow-up and further analysis can be done using a portable instrument on the unit's isolated signal output.

Measurement techniques:

- Shock Pulse SPM HD®
- FFT analysis HD ENV®

Intellinova Parallel MB is also easily integrated into existing industrial automation systems via the widely supported Modbus RTU protocol, thus enabling troublefree communication of measuring results to PLCs, SCADA or other process control systems.

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Are You Struggling With All Your Maintenance Inspections?

Is the scheduling, performing and documenting of your preventive maintenance, safety checks, safety instrumented systems (SIS), and hazardous area installation inspections (among many others) still paper based, labor intensive and error-prone?

With more than 40 years' experience of providing calibration solutions for the process industry, we know that every process plant has various inspections that must be done regularly, and we know that these can cause a major headache. That is why we have created a better way to perform maintenance inspections.

The Beamex solution includes CMX Calibration Management software and an optional Android mobile device application called Beamex bMobile. CMX software communicates with the bMobile application enabling a streamlined and fully paperless solution for maintenance inspections.

When using CMX software for inspections, you can plan and schedule all your activities and create detailed instructions for each inspection. When it is

time to perform the inspection, you send the work order(s) from CMX to the mobile device—whether an Android tablet or Android phone—and go out into the field. While in the field, the bMobile application guides you through all the steps, allowing you to make the Pass or Fail decision and add notes. The test results are stored in the app. When you return to the office, upload the results into the CMX software, which are then automatically stored in the database. Reports may be created, emailed or printed if necessary, and the work orders are updated.

For further information on CMX maintenance inspection & calibration software visit the Beamex website or contact Beamex in the UK.

The Beamex bMobile application will soon be available on Google Play and on Beamex website.



For more information, please contact Beamex: info@beamex.com.

AxFlow grows with strategic acquisition in Sweden

Leading specialist in positive displacement pumps, fluid handling systems and related services, AxFlow, extends its product portfolio and Swedish market coverage with the acquisition of Esspump AB.

With 570 employees and sales of 175 MEUR, AxFlow is the largest distributor of high quality industrial fluid handling equipment in Europe and South Africa. The addition of Swedish Esspump is strategically important.

"Both AxFlow and Esspump are known for their products technology and application knowledge. Our expertise and strong customer and supplier relations give us a strong market position in Sweden.

The two companies complement each other well. Together we will be able to offer our customers a much wider range of products and more extensive services and technical solutions", says Fred

Lindecrantz, Managing Director of AxFlow AB in Sweden.

"AxFlow represents a number of leading pump manufacturers including Mono, Nash, Waukesha, Hermetic, Blackmer and Maag. With the addition of Esspump, our product range is extended to also include equipment from Wilden, Almatec, OBL, Mouvex, System One and Quattroflow", continues Fred Lindecrantz.

Niklas Holmstedt, Managing Director of Esspump, is equally as enthusiastic about the acquisition commenting: "The synergy of complimentary

products, strong technical and application knowledge resulting from this acquisition and the international resources available from AxFlow will bring considerable benefits for our customers and new business prospects."

AxFlow AB, Sweden was established in 1991. Since then it has established itself as a major force in the chemical, mining, pulp and paper and water and wastewater, food and pharmaceuticals industries. The acquisition of Esspump AB makes AxFlow AB one of the largest distributors of positive displacement pumps in Sweden.

To find out more visit: www.axflow.co.uk

A better way to perform maintenance inspections



Beamex has created a new, mobile, paperless solution for maintenance related inspection activities like checks for preventive maintenance, safety instrumented systems and hazardous area installations. Beamex bMobile is a new mobile app for Android devices. Combined with CMX calibration software, the solution creates a totally paperless system for maintenance checks.



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BCAS First UK Online Survey of Compressed Air Users

BCAS is conducting a UK wide industry online survey to find out what users of compressed air need from their suppliers and maintenance providers at www.bcas.org.uk/survey. Everyone completing the survey will be entered into a prize draw for the chance to win an iPad Mini.

Comments Vanda Jones, Executive Director for BCAS: "As far as we know this is the first time that there has been an independent survey of end users to discover what they want from their suppliers and maintenance providers and how they rate their supplier."

"Compressed air is often referred to as the fourth utility and it can consume up to 30 percent of a company's total electricity bill, so its correct

specification, maintenance and service is vital. It is also a heavily regulated area that end users need to be aware of, so getting the correct advice is vital."

"I believe it is vital to take a snapshot of how the compressed air industry is performing and areas where we can collectively improve."

The survey will run from April to September 2016, with results published later in the year. The winner



of the iPad Mini will be notified by email in early October.

If you are an end user of compressed you can complete the survey by visiting www.bcas.org.uk/survey.

Cut Your Bottom Line Costs With ISO 11011

BCAS is urging businesses to adopt ISO 11011 to cut the cost of running their compressed air systems, even if they don't have to comply with ESOS (Energy Saving Opportunities Scheme).

Says Vanda Jones, Executive Director of BCAS; "Most businesses have no idea what the annual running costs of their compressed air systems are, yet it could be costing them up to 25 per cent of their annual electricity bill. In today's competitive world with increasing pressure on margins, any activity that can reduce the bottom line has to be worth exploring."

Before ESOS there was no process specific standard for assessing compressed air systems. Working with its members BCAS helped produce and publish BS ISO 11011, which was then adopted as the international standard ISO 11011.

Continues Jones; "Before ESOS, assessments of compressed air systems were either not done at all or relied on non standardised procedures and tests. Unfortunately some of these were unsuitable, inaccurate, too expensive and ultimately non productive. This has now changed with ISO 11011."

The standard identifies the roles and responsibilities of those involved in the assessment and considers compressed air systems as three functional subsystems; supply, transmission and demand.

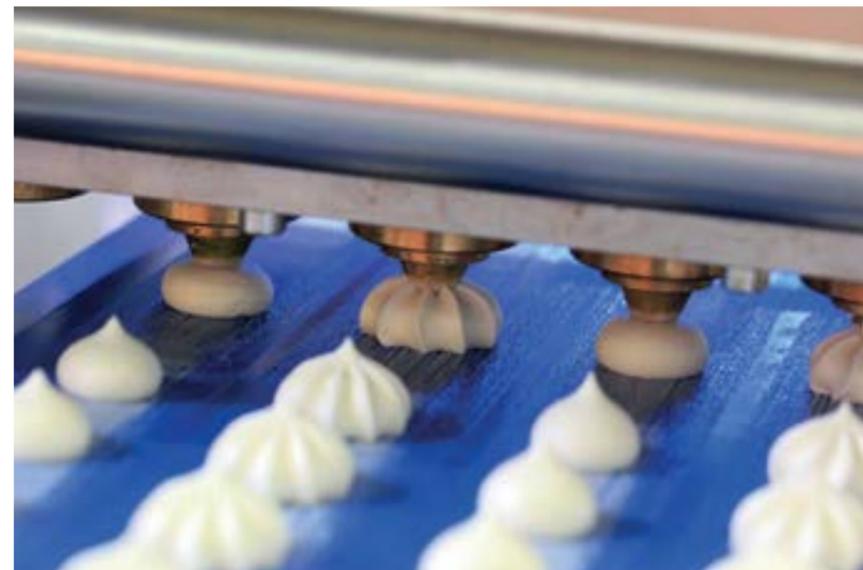
It provides a structured framework for data analysis, reporting and documenting any findings. The assessment then identifies estimated energy savings and a targeted action plan.

Concludes Jones; "It is always worth doing an energy audit on your compressed air system, which will often yield significant cost savings. Check with your service and maintenance supplier that they apply ISO 11011 to such an audit."

BCAS offers a day's introduction to ISO 11011 at a location of your choice. Alternatively several BCAS members offer a third party assessment service to meet the requirements of ISO 11011. For details of the day's introduction and BCAS members visit www.bcas.org.uk

FOOD GRADE COMPRESSED AIR

The importance of high quality clean compressed in the manufacture of food?



BEKO TECHNOLOGIES can now measure compressed air to ISO 8573-1 class 1 of the ISO standards. This is extremely important for industries such as food & beverage, pharmaceutical, medical, automotive and many more.

When dealing with food, hygiene is the main requirement to guarantee the quality of finished products. During production, the pneumatic processes and the transport of substances require compressed air of absolute purity. For packaging, clean compressed air is indispensable for cleaning, for example when using compressed air to clean plastic bottles or containers. Our process technology provides for the tailor-made treatment of compressed air via the discharge of condensate, filtration and drying.

The quality of compressed air is as before defined by ISO 8573-1 (2010) where levels of particles, water content and total remaining oil content i.e. liquid, aerosol and vapour are specified. For the user there are 2 categories of compressed air usage; direct contact and indirect contact. Direct contact is where there is direct impingement onto the product, ingredients or packaging. Indirect is the situation where pneumatic equipment is present and the exhausted compressed air from cylinders, actuators etc. are present in the production or packaging areas

Companies try to overcome considerable challenges during production: when the safety of products and processes depends on the quality of compressed air. It is necessary to guarantee treatment at the highest level and to establish air quality that is compliant with ISO 8573-1: 2010. BEKO TECHNOLOGIES not only produce systems for the treatment of compressed air but also offers a wide range of measuring instruments that monitor and record data; this guarantees visible and certified safety of compressed air quality.

BEKO TECHNOLOGIES offer a service that enables you to measure all the parameters in real time, without having to purchase all the instrumentation necessary to measure air quality to the ISO 8573 standards. All of the measuring instruments used during the service are subject to a regular annual calibration to guarantee the efficiency and reliability of the measurements.

Measurement of the quality of compressed air according to ISO 8573:

Solid particulate – residual humidity – residual oil (including vapour)

The high precision of the PC 400 particle counter measures at 0.1, 0.5, and 1 micron particle sizes

and is therefore ideal for monitoring the quality of compressed air to class 1 (ISO 8573). Our Pressure dew point meter shows temperature, relative humidity and pressure dew point capable of reading down to -100c pdp which is also well below the class 1 for moisture of -70c. Not just for compressed air but also for other gases.

For oil, BEKO TECHNOLOGIES have a solution which will constantly measure the remaining oil vapour content in compressed air and as above store data and relay in which manner is preferred. The METPOINT The METPOINT® OCV with TÜV certification meets the measurement requirements for residual oil vapour and hydrocarbons according to the ISO 8573.1 standard for classes 1, 2, 3 and 4. METPOINT® OCV makes the purity of your compressed air visible. The METPOINT OCV is installed in an increasing number of Food and Beverage companies because commonly used technologies are only able to measure to Class 2 for oil and therefore provide part of the compressed air solution. METPOINT OCV will go down to 0.003mg/m³.

There is a requirement for logging data and setting frequency of measurement and again here the process or equipment used should define actions or the guideline of 2 measurements per year followed. Today it is very easy to constantly monitor all the key parameters in a compressed air system and BEKO TECHNOLOGIES have a device METPOINT BDL which will monitor 12 analogue or digital inputs which could cover the guidelines. Data is available in many formats from connection to BMS to SMS to selected phones plus many other options.

Our products can test and validate compressed air quality to the highest standards.

For further information, please contact us on 01527 575778 or email info@beko-technologies.co.uk www.beko-technologies.co.uk

Focus on differential pressure: New Developments in Compressed Air Filtration

In European industry, approximately 320,000 compressors consume approximately 80 billion kilowatt hours per year in the generation of compressed air. This represents around 10% of the industrial electricity demand, costing the industry approximately 6.4 billion euro at a current electricity price of 8 cents per kWh. On the basis of the utility power plant mix, the environment is negatively impacted by 47.2 million tonnes of CO₂. Innovations in filtration technology contributed significantly in recent years to improve the filtration performance and reduce energy costs. The development work is thereby focused on filter media characterized by lower differential pressure at high retention efficiency.



As early as 2003, the Fraunhofer Institute for Systems and Innovation Research (ISI) determined in the study "Compressed air: efficiency," "It is especially important to achieve the necessary compressed air quality in the area of compressed air treatment. Energy and operational cost-effectively is meeting the requirements of applications. Exceeding or falling below the air quality requirements result in increased operating and energy costs. The available potential for savings per subcomponent can amount up to several thousand euros. By alternating the filter elements within the recommended intervals can achieve obvious savings and therefore minimize operating costs." This statement has not lost anything against the background of rising electricity

prices and the latest flow rate-optimised filtration technology in terms of its relevance and importance. The higher the filtration efficiency, the higher the differential pressure is. This leads to an increasing energy demand of the compressor. For each application, it is therefore necessary to detect the degree of compressed air purity as accurately as possible, and to check whether all consumers need the same high quality of treated compressed air. Assistance here is the ISO standard 8573-1 (compressed air for general use - contamination and quality classes), which has been repeatedly adapted to the growing requirements and developments over the years.

The question of the compressed air quality, however, is not to connect individual machines to the compressed air supply. Rather, the user requires a general statement for the quality that should be achieved in the air supply network or in individual departments to ensure maximum availability of the machines and optimal product quality. This question cannot be answered by ISO 8573, and that is what gave rise to the VDMA Professional Association, compressors, compressed air and vacuum technology to provide the compressed air users with appropriate recommendations. These recommendations were originally issued in 2004 with the "VDMA Standard Sheet 15390", which provides the recommended purity class for a variety of applications. The recommendations of the standard sheet are based on the principle "as much compressed air treatment as necessary, as little as possible." On one hand, the investment costs play a role: The higher the quality of compressed air should be, the higher the quality of the filtration. Even more important are the energy costs, which account for approximately 75% of the cost for compressed air. Therefore, the recommendation can only be to select the treatment from the beginning with a view on this cost factor.

Significantly reduction in differential pressure

ISO 12500 is available to anyone who wants to accept the selection into their own hands, which enables comparison of filter performance data based on standardized test conditions. Taking the mentioned parameters into account, it is possible to

develop a new filtration technology that combines high filtration performance with a reduction of the differential pressure by 50% compared to the previous series. (Figure 1). The new filtration technology uses a special structure of coated high-tech fibres that are processed into a pleated filter medium with a high separation efficiency of liquid particles and a huge adsorption capacity for solid particles. The multilayer structure of the new filter media was designed to result in aerodynamically optimal conditions and simultaneously over 400% more filter area is available compared to wound filter media. An efficiency of $\geq 99.9\%$ according to ISO12500-1 is achieved for the separation of oil aerosols. The filter performance data according to ISO12500-1 and ISO12500-3 have been also validated by an independent Institute for Energy and Environmental Research. This high filtration performance while reducing the differential pressure clearly contributes to increase the energy efficiency and save resources.

An economical solution for end point filtration

Since it is not economical to centrally provide extremely high quality compressed air for an entire air supply network if only few consumers actually need this quality, a compressed air filter was developed for the end point filtration, which takes over three filtration tasks in one element (Figure 2):

- as coalescence filter it retains oil aerosols and particles,
- as activated carbon adsorber it removes oil vapours and other hydrocarbons and
- as a high-performance particle filter, it ensures the achievement of quality class 1 according to ISO8573-1: 2010.

This compact three-stage compressed air filter offers significant economic advantages at a high safety standard: The number of filters is reduced, resulting in lower costs for maintenance and filter replacement. Space is saved, so that integration into machines and apparatus becomes easier. For end-of-pipe solutions in sensitive areas such as food



production, the pharmaceutical industry and the environmental technology, its use is as interesting as in the central compressed air treatment services for up to 110 m³ / h. It can be particularly advantageously used as a compact conditioning unit for small compressors.

Essential for the economic use of this new development is the simple retrofitting due to the low investment costs: Therefore, in any normal filter element replacement, the entry into the three-step technology is possible without investing in a new housing. When comparing the costs for replacing elements in the usual combination of three filters which are replaced with a new one, savings between 48% and 55% result. As connection of the housing top to the housing base, a bayonet lock is used, which can be released and connected by a 1/8 rotation. The filter element must not be screwed in separately, but it is mounted with the filter bowl. An electrical differential pressure gauge integrated into the housing enables a continuous capture of the differential pressure and therefore compares the resulting higher energy costs with the cost of the filter element. The program calculates the most cost

effective replacement time of the filter element and shows the necessary filter element replacement via a light emitting diode.

Modern filter technology saves energy and money

Practice shows that the necessary filter replacement after a maximum of 12 months or 8,000 operating hours is still performed rarely in terms of energy efficiency. Rather, just often the investment costs are important and not the savings that can be achieved in terms of the product life cycle costs and energy efficiency in the selection of spare and replacement parts. This means: With filter elements that were developed with the highest efficiency and lowest possible differential pressure and are validated according to ISO 12500, the user has an "adjusting screw" that can clearly reduce the specific energy demand.

For Further Details Visit:
www.donaldson.com

Reliable Production Of Compliant, High Quality Breathing Air

The highly successful Atacama range of modular air dryers manufactured by Hi-line Industries Ltd has been extended to incorporate a third filtration tower.



This feature ensures full compliance with BS EN 12021 standard 'Respiratory equipment – Compressed gasses for breathing apparatus'. This is currently the only standard to indicate contaminant levels for breathing air both in the UK and EU.

This product line development ensures that appropriate models in the Atacama range can

now be safely utilised in the most demanding environments including medical, pharmaceutical and laboratories together with the chemical and petrochemical industries. In addition, the emergency services and fire brigades have vital need of reliable and high quality breathing apparatus. The Atacama range is also suited for use in a wide range of paint and paint shop related applications as well as tunnel

construction, mining, diving and offshore industries, and also including shipyards for welding and tank cleaning operations.

Bulk water, in liquid and gaseous form needs to be eliminated from the breathing air. BS EN 12021 states that this should be at a pressure dewpoint not exceeding -11°C . This is because any water entering the filtration system will render the catalysts useless. This is why on all breathing air purifiers the first stage of the purification process is a desiccant air dryer.

The 'Atacama – CT' breathing air dryer is controlled by the proven Hi-line HDC 1 controller. This solid state digital controller not only has an LED digital dewpoint display, but has dewpoint control built-in as standard. This is pre-set on the breathing air application to change over to stand-by once a dewpoint of -15°C PDP is achieved. This ensures security for air quality, whilst also maintaining energy efficiency. Once the air is clean and dry after passing through the desiccant dryer section of the unit, the third vessel containing activated carbon and a catalyst, removes odours, taste substances, oil vapour/ aerosols, carbon monoxide and various other gases.

The fourth new component is a particulate filter, installed to filter out dust particles and carry over from the desiccant. This allows the operator to breath clean, dry and oil free air, free from contaminants.

Further information is available from:
Hi-line Industries Ltd, 5 Crown Industrial Estate, Oxford Street, Burton on Trent, Staffordshire DE14 3PG
Telephone: 01283 533377
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e-mail: enquiries@hilinindustries.com
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Jaguar Land Rover gears up for compressor efficiency at new engine manufacturing centre with Gardner Denver

When it came to selecting the compressed air system for its brand new, Engine Manufacturing Centre (EMC) in Wolverhampton, Jaguar Land Rover selected supplier Gardner Denver to provide a solution capable of high energy efficiency, low cost of ownership and reduced environmental impact.



Based on the proven Quantima compressor installation at the Jaguar Land Rover Castle Bromwich assembly plant, Gardner Denver has this time engineered a larger system capable of providing up to 8,000 m³/h of high-quality, oil-free air to the new AJ200 machine shop and assembly halls.

The result is a highly-efficient compressor package with an intelligent control system, comprising three Quantima Q-52 centrifugal compressors and two DH110 RS machines, with variable-speed drives to match air output to plant demand.

Application Details

Drawing on its existing experience of the CompAir Quantima compressors installed at its Castle Bromwich site, which have saved over 13,000

tonnes of CO₂ per annum since their installation, Gardner Denver was selected to commission an energy-efficient solution for the site's compressed air requirements.

Oil-free, high-quality air

Air quality is critical throughout the production process as the modern machine tools demand clean, dry and oil-free air. Any contamination could have an adverse effect on productivity and therefore, the compressors are optimised to provide completely oil-free air.

The Quantima compressor design avoids the need for a conventional gearbox, and therefore has no oil, no contact and no mechanical wear, meaning that there is no performance degradation over the life

of the compressor. In addition, the two DH110RS machines are water-lubricated to ensure that there can be no oil in the compressed air network.

This oil-free air, which meets stringent ISO 8573.1 standards, is then transported to a refrigerant dryer and further energy-saving adsorption dryer before discharging in to the compressed air network.

Compressor controls

An intelligent control system helps to minimise energy consumption by selecting the most efficient combination of compressors to meet plant demand for air. The larger Quantima Q-52 compressors act as the base load, with the smaller DH110RS machines coming on and off line to meet any peaks in production requirements.

Jaguar Land Rover will also benefit from the Quantima Q-Life predictive maintenance package with remote monitoring. This helps to prevent unscheduled downtime by tracking the compressors' operating parameters and predicting when a service may be required.

Heat recovery

To further enhance the energy performance of the installation, each Quantima compressor is fitted with heat recovery to reuse the otherwise wasted heat from the compression process, which is then used for space heating in the adjacent North plantroom.

Compressed air distribution

The clean, dry and oil free air is then distributed through the machine shop and assembly hall network using lightweight aluminium pipework. Installed by Gardner Denver distributor, Shephard Engineering Services, the pipework is easy to maintain, corrosion resistant and with its smooth profile, provides low friction, helping to minimise pressure losses and therefore improving energy efficiency further.

For further details visit:
<http://www.gardnerdenver.com>

TESEO LAUNCHES RANGE OF AIR & GAS FLOWMETERS INTO THE UK

Compressed air and gas pipework specialist, Teseo UK, has launched a complete range of flowmeters, sensors and monitoring systems for compressed air and technical gases.



Reducing air and gas consumption starts with identifying savings potential. With estimates that compressed air leakage can be up to 50% of industrial usage, an accurate monitoring process is becoming more and more important for Production Line and Facilities Managers.

The Teseo range of Flowmeters and sophisticated yet simple-to-use measuring systems provides the complete picture to determine air consumption and output flow of compressor and treatment equipment. It provides all the data needed to assist in making the right decisions to optimise a compressed air system.

The Flowmeters - the VP FlowScope product range - are backed by tested technology in use world-wide and carry a number of specific benefits. First, they provide flow, pressure and temperature in a single device, providing greater simplicity for the end-user. Secondly, they feature unique Thermabridge TM sensor technology, which

measures bi-directionally, allowing installation in a ring network and overcoming the problems some flowmeters experience where data reading can become confused by negative, partial and full-flows passing through the pipework. Thirdly, through a real-time energy monitoring system, users can see data and usage patterns for both supply and demand, linking all the utilities on-site and viewable on any platform from PC to smartphone.

The FlowScope range includes the following products:

The FlowScope M - the three-in-one flowmeter for compressed air and technical gases. It measures flow, pressure and temperature simultaneously. Re-calibration (usually requiring the shipment of the product back to base to have it re-set) is no longer necessary. The FlowScope M has a transmitter and sensor cartridge, which reduces re-calibration to a simple exchange. It comes with standard Ethernet interface, connecting directly to the user's network; it

is also internet compatible through 4...20mA signals and nR485 interface.

The FlowScope in-line. This provides real-time measurement at point-of-use and is simple to install with no interruption to the production process. It can be used for air, nitrogen, carbon dioxide, argon and all dry, non-corrosive gases.

The FlowScope DP. This is designed for wet air use, with its resistance to pollution and water drops. Typical installations are with wet air discharge of the compressor, in higher temperatures and in high velocity pipework.

A range of additional accessories is available to complement the measurement devices. These are designed to be installed wherever there is a particular need, and cover: insertion probes; dew point sensors; current sensors; leak detectors; hot drill tappers and ultrasonic thickness gauges.

The simplicity of installation is backed by the easy use of the management software which allows: allocation of costs; tracking and monitoring of leaks; automated reports on PDF; centralised benchmarking for different locations and the tracking of maintenance needs.

The products are all available both to purchase and on a rental basis, where the need is purely for a short, one-time system report.

As specialists for nearly 30 years in compressed air and gas aluminium pipework, and with installations throughout the UK and Ireland, Teseo UK is ideally suited to advise on the correct monitoring products needed for each specific production-line situation. They will arrange for site visits and analysis for the best solution while assisting in installation and operation to achieve full understanding of the data recorded.

TESEO UK
Tel: 08701 672150 Fax: 08701 672151
www.teseouk.co.uk
E-mail: info@teseouk.co.uk

New Facility Enhances Traceability And Validation For Industrial Clean Steam Users

In response to the growing requirement for clean steam in the process industry, Spirax Sarco has unveiled a dedicated UK clean steam manufacturing facility at its Cheltenham headquarters.



The brand new 1200m2 factory will manage the production of Spirax Sarco's comprehensive range of clean steam system components, including BT6-B, BTM7 and BTS7 thermostatic steam traps and clean sample coolers - with many more products to follow. This significant investment builds on Spirax Sarco's credentials as a clean steam pioneer, which dates back to the 1980's with its development of the original BT6 clean steam trap.

Designed to reflect industry expectations, the state-of-the-art facility manufactures only stainless steel products to eliminate the risk of cross contamination of ferrous and non-ferrous metals.

Meanwhile, product assembly is completed in the company's first dedicated ISO 7 cleanroom - the default classification for medical device packaging and one of several segregated testing, cleaning, and packaging locations which further avoid the risk of contamination.

As well as being able to offer customers full traceability and certified validation of the materials used to manufacture each product, the new facility will also enable Spirax Sarco to significantly improve the availability of its clean steam technologies and the associated technical and sales support. The result is a new production line which helps

customers adhere to the most demanding of industry standards and guidelines by investing in products which ensure a productive and reliable steam system.

The facility, which has also opened its doors for customer visits, will enable Spirax Sarco to continue to support process-led businesses with the design and supply of steam systems tailored for individual requirements.

On opening the new facility, Group Chief Executive, Nick Anderson, commented: "We understand the quality issues our customers need to consider when they invest in clean steam systems. Our belief is that organisations operating in the food and beverage, healthcare and pharmaceutical industries should be able to guarantee quality, service, and traceability of all clean and pure steam products from a single point of supply. Taking these needs into account, our new factory underlines our commitment to helping process businesses to achieve the best possible quality of clean and pure steam".

For more information on Spirax Sarco's state-of-the-art UK clean steam facility or to arrange a visit, email: uk.enquiries@uk.spiraxsarco.com.

Rick Stein Group Selects Real Asset Management's Maintenance Management Solution To Optimise Work Scheduling

The Rick Stein Group has selected Real Asset Management's (RAM) comprehensive system to track and improve maintenance processes for an asset base that currently spreads across more than 20 sites.

RAM's solution will provide a centralised database of crucial asset information and a detailed log of all work planned and completed.

Founded in 1975, the business has grown over the years to now encompass 10 restaurants, 4 luxury cottages, a cookery school, fisheries, a gift shop, a patisserie, a deli and 40 guest bedrooms. Whilst the heart of the business is in Cornwall, it continues to grow its presence nationwide, establishing bases in locations that include Hampshire, Dorset and Wiltshire.

RAM's system will be used to record and track information related to the maintenance and running costs of the company's 800+ asset base. This will mainly consist of large and often expensive industrial kitchen equipment such as ovens, fryers, fridges and freezers. Whilst currently in the preliminary stage of importing asset data, the company plans to utilise RAM's mobile maintenance app to ensure the central database is kept up-to-date, using the latest in portable, handheld technology.

Before selecting RAM, maintenance information was stored on spreadsheets and communicated through internal emails. Moving over to a specialist system will allow this information to be accessed by any authorised employee that requires it. Ian Fitzgerald, Operations Director at the Rick Stein Group comments, "Collating all of our asset information within one location will give us greater cost visibility between all departments and monitor expenditure.

"We initially thought that the company was not of a size to warrant dedicated software. However, after evaluating the functionality on offer, we were confident that using RAM's system would help us to reduce costs and provide a good Return-on-Investment."

One of the key objectives of adopting RAM's solution was to improve work scheduling processes and move from a largely reactive maintenance environment to one that predominantly consists of planned works. Ian comments, "Due to the fast-paced nature of the business, we have traditionally

carried out most of our asset maintenance as problems occur. With the new system, we will now be aiming to shift the current ratio of planned and reactive maintenance from a 40:60 split to 70:30, significantly reducing expensive break-downs."

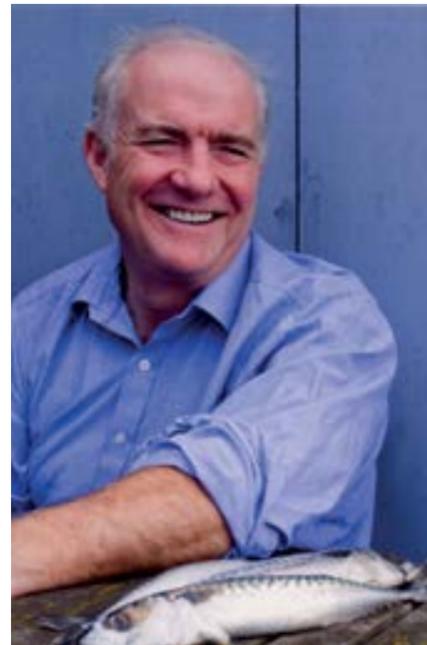
To help optimise work scheduling, the company will have access to a comprehensive maintenance plan calendar. This will allow the business to create work orders quickly for routine tasks and schedule them into the desired cycle, i.e. weekly, monthly, quarterly or annually. Jobs can be created on a drag-and-drop basis and colour-coded by priority, giving the business good visibility on which tasks need to be completed in which order.

In addition to contractor management, the software will provide the company with the ability to log information about work orders that are carried out by its own maintenance team, enabling the company to manage its internal resources more effectively and keep a record of where work has been carried out and by whom. This information has not been tracked in such detail in the past and the company will be analysing it to expose hidden costs.

In-depth reporting tools and graphical dashboards will assist the company in making decisions on whether to replace an asset or have it repaired. Ian adds, "Key Performance Indicators (KPIs) will provide valuable information regarding what is being spent on maintenance and how often work is being carried out. With data automatically collated and readily available, we will now be able to identify trends in equipment performance, maximising unit efficiency."

The integrated health and safety certificate functionality will provide a useful service to the business. With the software in place, the company will be able to ensure that all of its essential documents are adequately managed. Having information instantly accessible will also provide more of a grasp on when certificates are due for renewal and when deadlines are approaching.

The Rick Stein Group has opted to have the system



hosted on RAM's cloud platform. A driving factor in this decision was the flexibility and capacity it offers, while also giving senior managers more control over access. Utilising the hosted platform will save the business and its internal IT resources time. The company will have all of its database backups stored for them and when upgrades are required, they will be carried out by RAM.

When discussing why the company selected RAM, Ian commented, "Our Account Manager at RAM was always readily available, whether it was for a face-to-face meeting, a demonstration or a phone call. This gave the process a personal touch, which was refreshing. So far, the working relationship with RAM has been very open and positive."

For further information, please contact:
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Belzona Repair Gives Trains a New Lease of Life

Cold-bonding polymeric techniques prove their advantages over welding



Over the course of two centuries, railway networks throughout the UK have changed significantly from the original public railway, to become what many of us use today. However, the vast majority of trains still charting their journey around the country have been in operation since the late 1960s or early 1970s. Therefore, with such an extensive service life, these trains continuously require repair and maintenance in order to keep them running. In fact, some have been left to rack and ruin after having been stored in sidings for up to 30 or 40 years, during which time the effects of vegetation and corrosion have taken their toll.

Above: When left in sidings, trains are subjected to the effects of corrosion and vegetation

At the beginning of 2015, Belzona was contacted by a UK-based company specialising in the restoration of dilapidated trains. Once salvaged, train refurbishment involves dismantling in order to conduct varying degrees of repair and maintenance, before repainting and returning to

Below: Bottom of corroded diesel tank featuring pitting and holes



a like-new condition. Not only does this provide a cheaper alternative to purchasing a new train, but it also delivers a new lease of life to many of these abandoned diesel-electric freight trains.

During the refurbishment process, the company identified a recurring problem with the diesel tanks. Originally, the undersides of all diesel tanks were covered with fibreglass as a protective barrier against sparks flying up from the tracks. Critically, moisture would enter the gaps between the fibreglass and the steel tank, causing corrosion of the metal; in some instances this appeared as



Above: Diesel tank after Belzona 1121 plate bonding

pitting or even holes. Their present repair method comprised of grit blasting the fibreglass away from the diesel tanks and welding steel plates over the weakened areas. However, subsequent pressure testing revealed that welding was causing further cracks or weaknesses in the steel around the various HAZ (heat-affected zones). These weaknesses were compounded further by additional weld repairs and pressure tests before the company was satisfied with the final outcome. This proved to be both time consuming and expensive.

The customer required a cold-applied solution to repair these defects, ensuring that further damage

Right: Repaired diesel tank fitted onto refurbished train

from hot work did not compromise and slow the repair process. After consultation, Belzona 1121 (Super XL-Metal) was selected as an appropriate material to restore the diesel tanks to working condition. Initially, the surface was prepared in line with Belzona protocol, before metal plates were cold-bonded onto the damaged steel. With application and curing at room temperature, Belzona 1121 offered a corrosion resistant solution which was able to eliminate the threat of HAZ and significantly pass the pressure tests first time. Finally, the repair was coated with GRP (Glass-fibre Reinforced Plastics) and painted black, in line with the remainder of the tank.

Significantly, the customer was satisfied with the speed of the process in comparison to their



traditional repair method. This allowed the repaired tanks to be refitted onto the trains far quicker, whilst also offering a long-term solution for their initial problem. Belzona 1121 has since been incorporated into their authorised specification for all diesel tank repairs and is now a company approved repair method.

Polymeric cold bonding techniques such as these have been used throughout industry, completing

applications in environments from mining to oil and gas. Regardless of the type of machinery and equipment or buildings and structures, Belzona's polymeric materials have provided countless solutions, with proven results.

Belzona Polymeric Limited
belzona@belzona.co.uk
www.belzona.com

Cold-bonding Offshore Solutions

Belzona's polymeric cold-bonding materials provide excellent adhesion and in-situ application for a diverse range of offshore repair and maintenance issues.



Offshore structures and marine vessels all require maintenance and repairs to be carried out quickly, safely and with minimal disruption.

Eliminating the dangers of hot-work, these cold-bonding solutions simultaneously provide high adhesion and corrosion resistance in face of extremely destructive salt water environments.

Belzona's cold-bonding applications include:

- Deck and roof renovation
- New equipment installation using Belzona as a load bearing shim
- Doubler plate bonding for platform leg and riser repairs
- Structural reinforcement of beams and pipes



Visit us at SMM Hamburg 2016 at stand B5.123 or online at www.belzona.com/sos



Do Your Emergency Shower Systems Meet The Internationally Recognised ANSI Performance Standard?

As part of the philosophy at Empteezy®, when we launch a new range not only do we ensure the products are of the highest quality, we ensure that they are fully compliant with the appropriate standards/regulations.



Our new range of Emergency safety showers & eyewash basins is no exception, conforming to both European and International standards, the most comprehensive of which is ANSI Z358.1 2014.

The ANSI Z358.1-2014 standard establishes universal minimum performance and use

requirements for emergency eyewash & drench shower equipment used for the treatment of the eyes, face, and/or body of a person who has been exposed to hazardous materials and/or chemicals. First implemented in 1981 the standard was modified in 1990, 1998, 2004, 2009, and most recently in 2014.

Equipment covered by the standard includes: Drench showers, eyewash, eye/face wash, portable eyewash, and combination eyewash & drench showers. The standard also covers equipment performance and use of personal wash units and drench hoses, which are considered to be supplemental equipment to emergency eyewash and drench shower units.

In addition to performance and use requirements, the ANSI Z358.1 standard provides requirements for test procedures, employee training, and the maintenance of the equipment.

Tepid water:

The requirements have been moved into the definitions section and are clearly defined with a range of 16°C - 38°C.

Water Temperature & Tepid Water:

Tepid water is crucial, but often overlooked when providing compliant eyewash and drench shower stations. The ANSI standard specifically mentions the delivery of tepid water and defines it as "A flushing fluid temperature conducive to promoting a minimum 15 minute irrigation period, the suitable temperature range is 16°C - 38°C".

Medical professionals recommend that tepid water be used to treat chemical injuries to eyes and body tissue because temperatures that exceed 38°C can enhance chemical interaction with the eyes and skin.

Additionally, flushing liquid temperatures below 16°C can cause hypothermic shock. The standard further states that while cooler flushing fluids may provide immediate relief after chemical contact; prolonged exposure to cold fluids affects the ability to maintain adequate body temperature and can result in the premature cessation of first aid treatment.

Tepid water can be delivered to emergency eyewash and showers in different ways, the most common is to install a thermostatic mixing valve or water tempering valve to blend hot and cold water and provide a temperature within the range defined. These valves should include a hot water shut-off to prevent accidental scalding, and a cold-water bypass to ensure the delivery of flushing liquids in the event that the hot water supply fails. It's also important to note that standard water mixing valves should not be used.

Most facilities located in the UK have outside temperatures that can drop to below 0°C during the winter, therefore emergency stations that can be exposed to freezing temperatures need protection, the standards state that "Where the possibility of freezing conditions exists, equipment shall be protected from freezing or freeze-protected equipment shall be installed". Conversely locations where the ambient water temperature can exceed 37°C will require anti-scald valves to purge potentially scalding water from the feed lines. This will include outdoor locations that are exposed to direct sunlight, or indoor locations exposed to extremes of temperature created by a manufacturing process.

Simultaneous Operation:

Units which combine a drench shower with an eye/eye face wash must be capable of being used simultaneously.

Activation:

Emergency showers shall be designed, manufactured and installed in such a manner that, once activated, they can be used without requiring the use of the operator's hands.

Equipment Location:

All emergency stations must be located in areas that are accessible within 10 seconds, roughly 17m this is referred to by the industry as the "10

second rule". Best practice is to check the travel time to determine if you have the emergency station located within 10 seconds, keeping in mind that an injured person may require extra time/support to reach the designated station. Where highly corrosive chemicals are used, thought should be given to installing the emergency station as close as possible to the potential hazard. Remember to check the routing of any electrical supply which might then be within the contamination zone.

Obstructions:

Emergency stations must be located on the same level as the hazard and the pathway between them must be clear of any obstruction. If your site has a hazard that is located on a different level to your current emergency station, you will have to install an additional station on the same level as the hazard. Again there must be no obstructions between them. Please note that a door is classed as an obstruction, but if the hazard is non-corrosive, one door is acceptable between the hazard and the emergency station so long as it opens in the direction of travel of the person requiring its use.

'A single step up into an enclosure where the equipment can be accessed is not considered to be an obstruction. Additionally, installers should allow for adequate overhead clearance to accommodate the presence of cabinets over counter, or faucet mounted emergency eyewashes so as not to create an additional hazard that could be encountered when using the device.'

Identification:

Eyewash and drench shower stations must be installed in a well-lit area and identified with a highly visible safety signs.

Supply Lines:

All water supply lines must be provided to meet minimum flow requirements at 30-90 psi. The recommended incoming pipe sizes are as follows:

- ½" for eyewash and eye/face wash stations
- 1" for drench showers
- 1¼" for combination eyewash drench showers

Shut-Off Valves:

If shut-off valves are installed on the supply line for maintenance purposes, provisions must be made to prevent an unauthorised shut-off to ensure valves are always open.

Waste Disposal:

Proper disposal of the contaminated water must be considered when installing new equipment. Drainage, freezing temperatures and pollutants, should be considered. We recommend that you consult your Local Authority, Water provider or Environment Agency for additional guidance on the correct wastewater disposal method for your site.

Training:

All employees who may be exposed to hazardous or corrosive materials must know the locations of, and be instructed in the proper use of the eyewash and/or drench shower equipment on site and in addition site plans showing the exact locations of all emergency stations should be freely available to anyone entering the site.

Maintenance & Testing:

Planned maintenance is necessary to ensure that all emergency equipment is functioning safely and correctly. Weekly testing will ensure the supply lines are clear of sediment and bacteria build-up that can occur in stagnant water. The standards state that plumbed equipment, "shall be activated weekly for a period long enough to verify operation and ensure that flushing fluid is available" and portable and self-contained equipment " shall be visually checked weekly to determine if flushing fluid needs to be changed or supplemented". Such inspections shall be conducted in accordance with manufacturer's instructions.

Read our Emergency Safety Shower & Eyewash e-Book here: <http://goo.gl/a80tEO>

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BOSCH EXTENDS CHP OFFERING UP TO 2MWe

Bosch Commercial and Industrial has extended its market leading Combined Heat and Power (CHP) offering to include modules ranging from 600kWe – 2MWe.



As a continuation of the manufacturer's range of heating and cooling products, Bosch's new MoSys (Module Systems) CHP units boast increased outputs, allowing each module to provide the simultaneous generation of electricity and usable heat from the same source.

As with all CHP systems, the extended range require less fuel to generate the same thermal and electrical output as a conventional boiler and electrical grid supply solution, helping to significantly reduce CO2 and NOx emissions. The benefit of the modular nature of the new Bosch CHP systems is that each

module is easier to install, which saves time on projects, and ultimately limits spend.

The new higher outputs also offer greater possibilities for configuration and usage with the range particularly suited to industrial applications such as factories or large scale district heating projects.

Shaun Mansbridge, Business Development Director at Bosch Commercial and Industrial, comments: "This is a very exciting time for CHP and as a relatively new technology, it is important we continue

to develop its potential through its application and performance.

"By offering a pre-fabricated system and accompanying 3D BIM files for each module we hope the new Module System will help to modernise the large scale CHP market and transform a historically design intensive and custom project into a standardised off-the-shelf solution.

"In broadening the CHP range businesses and organisations in the UK are able to benefit from significantly reduced energy consumption and high levels of efficiency meaning that an initial investment may be repaid in as little as two years."

For more information on Bosch Commercial and Industrial and its range of products and services, including its comprehensive CHP range, please visit: www.bosch-industrial.co.uk or call 0330 123 3004.

Follow Bosch Commercial and Industrial on Twitter (@BoschHeating_UK) and LinkedIn (Bosch Commercial and Industrial UK).

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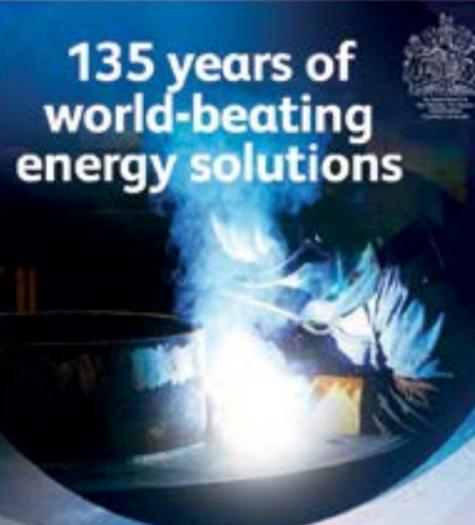
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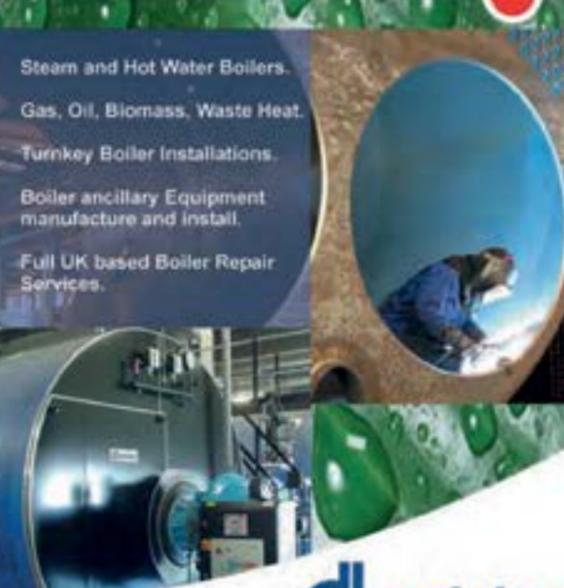


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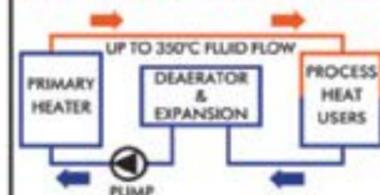
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