

ENGINEERING solutions MAINTENANCE

April/May 2022 | Issue 109

www.engineeringmaintenance.info

WJA Gives Water Jetting Standards An Annual Audit Boost

Page 4



Read Article



Register For Your FREE Pass to Europe's Largest Lubricants & Bearings Event

Register for free

**IN-PERSON
EVENT**

**4,500+
ATTENDEES**

**250+
EXHIBITORS**

**60+
SPEAKERS**

JOIN THE INDUSTRY:



TWO CONNECTED INDUSTRIES:

Lubricant Expo & The Bearing Show combine together to provide attendees with the largest exhibition and conference from these industries. The free-to-attend event features the full range of lubrication and bearing solutions, spanning each value-chain, from raw chemicals and additives, instrumentation, equipment, manufacturing and testing solutions, to cutting edge finished lubricants and the latest bearings for high-performance applications.

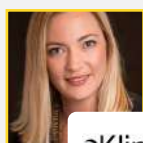
CONFIRMED SPEAKERS:



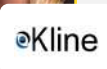
Tanja Illic
Managing Director
Nanol Technologies



Prof. Boris Zhmud
Head of Research &
Development
BIZOL Germany GmbH



Annie Jarquin
Director of Global Business
Development
Kline's Energy
Management Consulting
Business



Apu Gosalia
Sustainability Expert
Adviser, Senator at
Senate of Economy
Partner at Fokus Zukunft



Maurizio Abbondanza
Sustainability Director
Infineum
International Ltd



Manfred Jungk
Founder & Lubrication
Technology Consultant
MJ Tribology



Conference Themes will Include:

- Lubricants sustainability
- Meeting the Evolving Needs of Lubricant Customers
- The Lubricants Supply Chain – Challenges and Management
- Solutions for e-mobility and advanced ICE applications
- Lubricant R&D innovations
- Gaining energy efficiency in demanding environments
- Plant lubrication strategies
- Digitalisation
- Increasing performance for OEM's



Publisher

Michael Dominguez
michael@engineeringmaintenance.info

Advertising

Steve Pheasant
stevep@engineeringmaintenance.info

Website

www.engineeringmaintenance.info

Telephone

+44(0)203 575 1170

Msl Media Ltd
Suite One,
Lower Ground Floor,
One George Yard,
London,
England,
Ec3v 9df
www.mslmedialtd.com

Company Number
05359182

Incorporated
09-02-2005



Page 3 Contents

Pages 4-5 Cover Story

Pages 6-23 News and Products

Pages 24-29 Boilers & Burners

Pages 30- 47 Condition Monitoring

Pages 48-53 Materials Handling

Pages 54-55 Industrial Cooling

Pages 56-57 IOT

Pages 58-73 What's New

Pages 74-75 Buyers Guide





WJA Gives Water Jetting Standards An Annual Audit Boost

The Water Jetting Association, the UK member organisation for water jetting, has introduced an annual audit system to help set uniformly high standards across the industry.

The measure is designed to ensure all members fully understand and meet the criteria for joining the WJA and continue to meet those standards as their membership is renewed each year.

It also promises to give members a commercial edge as they will be able to promote their audited status with a special WJA logo.

Jeff Haigh, a member of the WJA Ruling Council, is leading the audit initiative. He said: "Members have responded very positively to our new audit system.

"It is allowing us to be more certain that organisations seeking to join the WJA meet our criteria and that members continue to meet these standards as their activities develop.

"We're also able to give companies who want to join the WJA better support and advice, as well as identifying where we can improve ongoing advice for members and raise standards still further.

"Ultimately, by gathering more data and making the best use of it, service users can have more confidence that the water jetting carried out on their behalf is always safe and of a high quality."

The WJA sees key advantages in the new auditing process:

- It demonstrates the importance of key practices, including training and

adherence to WJA codes of practice;

- It is evidence of the willingness of WJA members to meet high, operational, and commercial standards;

- It raises the profile of WJA members and strengthens their commercial advantage;

- It sets a clear and measurable benchmark that will help the WJA gain

agreement for future improvements;

- It helps establish a standard approach to key aspects of water jetting activities, for example hose management.

The new audit system introduces a new stage in the application process for both prospective members and renewing ones.

Application forms have been thoroughly reviewed and updated, with more data and additional documentation now required to support the auditing process.

Key information required includes: financial data; insurances held; training and safety procedures; what equipment is used; and how it is maintained.

All applicants must also sign declarations that they will comply fully with the WJA's professional charter, constitution and codes of practice.

In the past, renewing members had to sign a declaration that they continued to meet the criteria for the type of membership they held.

Now, all applications – for first-time membership and renewal of membership

– are required to provide a full set of supporting data and evidence.

They are then put through the same rigorous desktop auditing process to ensure all required information and supporting evidence has been supplied and meets the WJA's quality standard.

All new applications are then still approved by the WJA Ruling Council, as before.

The new auditing system is being introduced in stages. Applicants for all membership categories from C1 to C6 are being audited in 2022.

But only renewing members in the water jetting contractor categories (C1 and C1P) are going through the process this year. Renewing members in the other categories will be audited from 2023.

The first audits are being carried out by Jeff Haigh, a qualified ISO auditor, who also devised the auditing process. He said: "Auditing creates a firm platform from which we can develop our standards further.

"In that way, it's good for our members, service users and the WJA itself. Members must also agree to the carrying out of onsite audits, if required. Though, I see those being needed only in exceptional circumstances."

www.waterjetting.org.uk

Snickers Workwear

ISO Compliant High-Vis Workwear

A

Superior Range of Working Clothes for Class 1, 2 and 3 protection.

Snickers Workwear has an extensive range of High-Vis men's and women's workwear for all kinds of working environments and light conditions.

With Jackets, Trousers, Shorts, Toolvests, Shirts and Fleece from Snickers' LITEWork, FLEXIWork and ALLROUNDWORK families to choose from, there's a host of different garments in the range to satisfy the specific requirements of Classes 1, 2 and 3 protection levels.

These 'outstanding' products combine with Snickers Workwear's unrivalled hallmarks of

functionality and comfort to satisfy the ISO 20471:2013 standard for high visibility warning clothes.

With advanced designs, high-tech fabrics and performance reflection features, all the garments have durable colour-fast protection that will last for wash after wash, retaining shape, comfort and protection levels throughout the

life of the garments.

Added to which, Snickers Workwear High-Vis garments can be custom-profiled to ensure 'stand out' coverage for your corporate brand.

For more information on the Snickers Workwear range of High-Vis Workwear, call the Hultafors Group UK Helpline on 01484 854788, checkout the website at www.snickersworkwear.co.uk or email sales@hultaforsgroup.co.uk



1982 – 2022 Celebrating 40 Years of Premier Coatings Ltd

Premier Coatings Ltd are proud to be celebrating 40 years of trading this year. Founded in 1982 and operating from Smarden in Kent, Premier Coatings Ltd specialise in the manufacture and supply of a wide range of corrosion prevention and chemical resistant coatings, linings, and waterproofing systems.

The company supplies reliable and cost-effective products to the Oil & Gas sector, Utilities sector, and construction industry. Their Products are supplied to a variety of

National, ISO, and commercial standards. The Premseal™ range of waterproofing and gasproofing products are CE and UKCA marked, and the company operates under ISO 9001:2015 and ISO 14001:2015 quality and environmental management systems.

In 1997 Premier Coatings Ltd was acquired by anti-corrosion and sealing specialist Winn & Coales International, where it continued to prosper and in 2017 achieved a Queen's Award for Enterprise: International Trade.

Steve Crawley, Managing Director of Premier

Coatings Ltd commented, 'This major milestone of 40 years could not have been achieved without the support of our employees, distributors, clients and the continual development of the company and its products. We are proud of our past and look forward to an exciting and successful future together.'

The 40-year success of Premier Coatings Ltd is a story of technical expertise coupled with high-quality, long-lasting products underpinned by continued investment in new manufacturing methods and technology.



Brammer Buck & Hickman and SKF release range of informative resources on bearings in food & drink applications

Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, has released a range of valuable resources on bearings aimed specifically at engineers operating in the food and drink sector; these include a webinar, a dedicated website section, a product brochure, a guide to the challenges faced in this sector, and several case studies.

Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, has released a range of valuable resources on bearings aimed specifically at engineers operating in the food and drink sector; these include a webinar, a dedicated website section, a product brochure, a guide to the challenges faced in this sector, and several case studies.

In the food and drink industry, bearings are faced with some of the most demanding environments to be found, required to perform across a very wide range of temperatures, subject to frequent washdowns and guided by regulations that are becoming ever more stringent; and, of course, there are cost considerations. The choice of bearings

therefore requires careful consideration. Brammer Buck & Hickman, which has extensive experience of working with some of the biggest names in the food and drink sector, has come together with bearings manufacturer SKF to produce a range of resources to assist food and drink producers improve the performance and service life of their bearings.

A recorded webinar, hosted by Brammer Buck & Hickman and presented by SKF, is available on YouTube on the RubixTube channel. In under 40 minutes, the webinar examines the key issues that impact on bearings in the food & drink sector, with a focus on reducing risk when it comes to food safety. It also identifies bearings that are best suited to this industry and includes a preview of the latest products and technologies due to be released.

For those that prefer to digest information in a different format, Brammer Buck & Hickman

has produced two new brochures. The first is a product brochure on SKF bearing solutions for the food & drink sector, which covers the Food Line Blue Range, Food Line Deep Groove ball bearings and SKF Fryer bearing technology. The brochure looks at the key attributes of these bearing units and how they could benefit your production process. The second PDF is a guide: 'Top 3 Challenges in the Food & Drink Sector...and how to ensure your bearings meet them'.

It looks in more detail at the issues surrounding safety, cost control and sustainability in the food and drinks processing sector. Just as importantly, it provides guidance on how to meet those challenges. Both brochures are available to download from the food & drink industry page on Brammer Buck & Hickman's dedicated SKF bearings section on its website:

uk.rubix.com/supplier/skf/foodandbeverage.

Need to hire a hoist?

Let Hoist & Winch lift the burden

Alongside its wide portfolio of lifting and handling equipment for sale, Hoist and Winch Ltd is currently promoting its extensive know-how and experience in the hire market. The company is an expert in turnkey hire projects involving air- and electric-powered hoists, overseeing installation, commissioning, testing and certification tasks as part of a complete service package that provides genuine market differentiation.

Through its turnkey offer, Hoist & Winch expertly advises customers on the most suitable equipment for their lifting requirements, making precise arrangements to ensure safe and reliable operation. This advice is particularly important for air hoists, where the selection of a portable diesel compressor or the checking of plant air supply is necessary. Here, requirements will include specifying the optimal operating pressure, air volume, and hose length and bore size, as well as preparing and lubricating the air supply.

Hoist & Winch completed a notable turnkey hire project over the recent Christmas period. A customer within the building materials industry hired a special 12t swl (safe working load), twin air-powered, trolley-based air hoist for lifting and replacing a large gear weighting 9t. This type of hoist was necessary to spread the 9t load over a greater distance of the monorail beam bottom flange than a standard hoist trolley arrangement would allow.

The project was unusual in that Hoist & Winch had to first load, test and certify the monorail beam using two separate 6t swl air hoists and trolleys to support its uprating from 5t swl to the 9t load. This work was essential before the 9t gear lifts could take place for two reasons. Firstly, the special 12t swl, twin air-powered trolley hoist was not designed for negotiating the curved monorail beam section present just after the test load pick-up point.

In addition, the consultant engineer's calculations showed that the curved monorail beam section was not suitable for bearing the 11.25t proof test load. As a result, the proof test load travelled past the curved monorail beam section separately and divided equally between the two individual 6t swl air hoists/trolleys. In a further project challenge, all hoist unit side and headroom dimensional clearances were very tight and critical.

From initial consultation and equipment specification - through installation, commissioning and testing - to issuing the LOLER report, delivering handover training

and providing maintenance support for the eight-week hire period, Hoist & Winch acted as the technical partner at every stage of the project. This customer, like all of the company's customers, find that the turnkey hire service from Hoist & Winch provides assurance of a high-performance, safety-certified solution delivered on-time and on-budget.

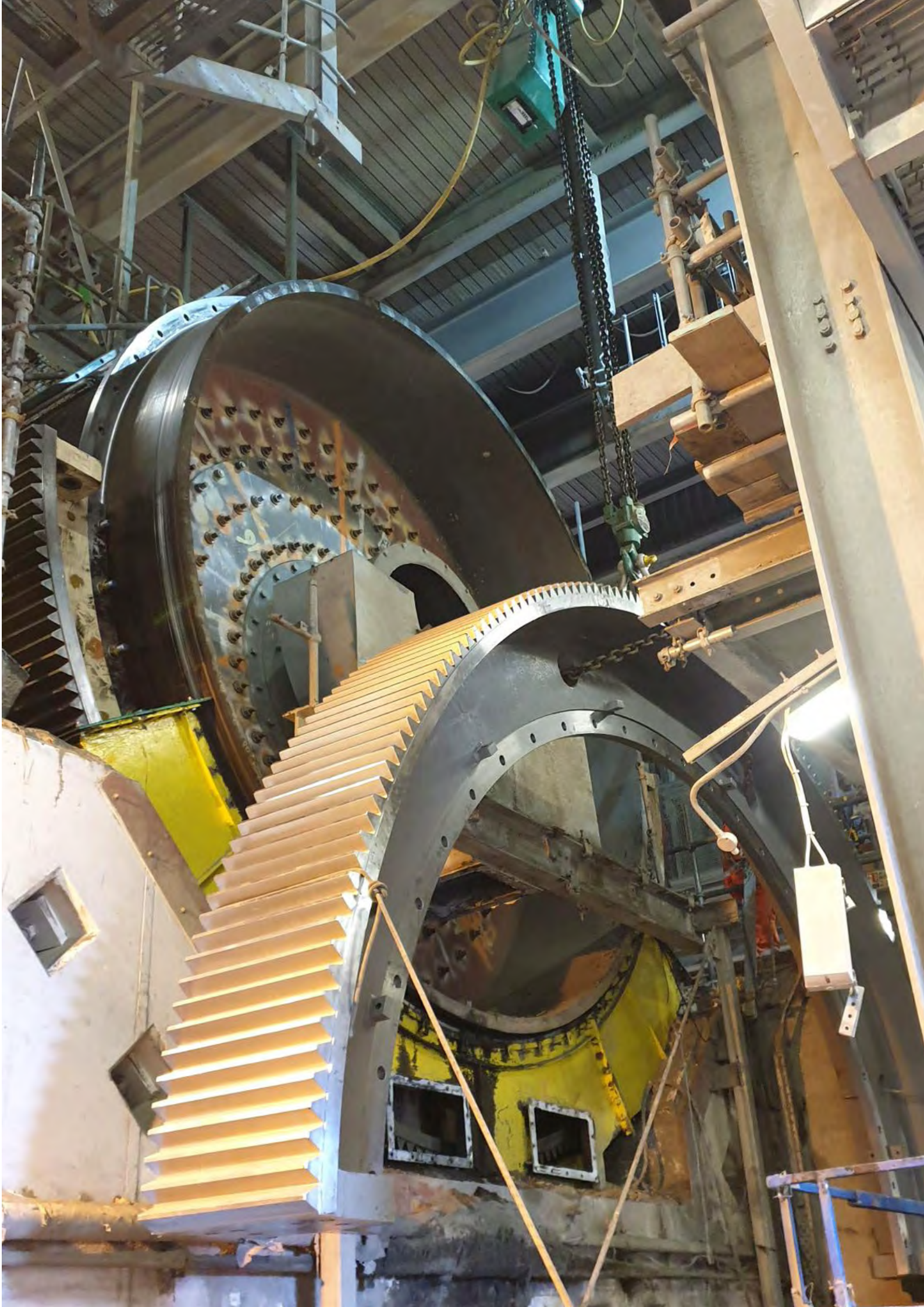
Hoist & Winch points out that the option also exists for customers to hire stand-alone air- and electric-powered hoists for installation by their own competent personnel, if preferred.

Hoist and Winch Ltd

Unit 20, 11B Arrow Business Park,
Alcester Employment Park, Arden
Road, Alcester, B49 6HN

Tel: 08450 171126

sales@hoistandwinch.co.uk
www.hoistandwinch.co.uk



3dgbire Announces New Partnership To Deliver Metal Additive Manufacturing

3D print specialist 3DGBIRE has announced a partnership with CMG Technologies – a leading provider

of Metal Injection Moulding (MIM) – to bring UK-based de-binding and sintering capabilities for parts which have been 3D printed with BASF Ultrafuse 316L and 17-4PH stainless steel filaments.

The move will enable customers to rapidly introduce metal additive manufacturing into their businesses and produce pure, industrial grade metal prototypes and end use parts in as little as five days, without having to export them overseas for de-binding and sintering after printing.

Leah Melling, marketing, sales and technical support manager at 3DGBIRE, explains: "This partnership with CMG Technologies will make it easier and faster than ever for customers to print metal parts and prototypes on FFF or FDM 3D printers and finish them with de-binding and sintering - all here in the UK.

"Previously, parts had to be shipped to Germany for processing, which was costly and time consuming, so we were

naturally very keen to bring a de-binding and sintering offering into the UK that will ultimately enable business to realise the enormous cost and time savings of additive manufacturing."

The development helps businesses to reduce lead times, allowing them to quickly produce prototypes and begin production with additive manufacturing, whilst avoiding expensive tooling and mould costs if high volumes are not required.

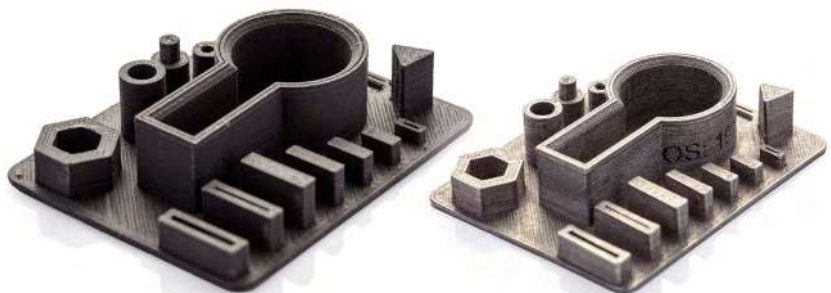
Parts are produced with Ultrafuse 316L and 17-4PH filaments, which contain high levels of stainless steel and polymer binders to enable easy printing. The binder content is then removed from the printed part via a catalytic de-binding process and the part is then sintered to

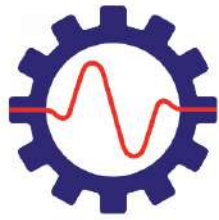
a high density to achieve its hardness and strength. The parts produced by this process are virtually identical to those produced by MIM or CNC, which are more costly manufacturing methods for small batches.

Rachel Garrett, managing director of CMG Technologies, adds: "We're very pleased to partner with 3DGBIRE and provide this full end to end service. By merging our specialist manufacturing processes, we have essentially helped businesses to cost-effectively begin producing stainless steel metal components in smaller volumes, with the flexibility to easily iterate them if they need to."

To learn more about 3D Printing with BASF filaments, email

sales@3dgbire.com





FARADAY PREDICTIVE

**ENABLING SOLUTIONS IN CONDITION-BASED MAINTENANCE
TODAY FOR A BETTER WORLD TOMORROW**

**Specialists in the application of Model-Based
Voltage and Current (MBVI) systems**



info@faradaypredictive.com

(+44) 0333 772 0748

Providers of portable and permanently installed condition monitoring and energy monitoring and optimisation systems. Faraday Predictive systems require no sensors to be mounted on your plant equipment, instead we use the electric motor driving your equipment as the sensor. Simply by measuring the voltage and current drawn by the motor we can identify an astonishing amount of information about developing problems in your equipment, giving you an indication of current condition and predicting future condition for up to three months in the future. We provide easily understood advice on the nature of the fault, how we have diagnosed it, the effects it is likely to have, and what you should do about it. We also quantify the energy being wasted by faults, allowing you to cost-justify corrective work on energy saving grounds.

For more information see our website or contact us direct.

WATER JETTING TRAINING FOR THE MAINTENANCE AND ENGINEERING INDUSTRY



Key Benefits

- | City & Guilds Accredited
- | WJA-Approved Instructors
- | New Recruits & Refresher
- | Written Compliance Test
- | Certificate & Photo ID Card

Courses Offered

- | Safety Awareness
- | Pressure Washing
- | Tube & Pipe Cleaning
- | Surface Preparation
- | Hydrodemolition
- | Drain & Sewer Cleaning



**ARE
YOUR WATER
JETTERS AND
PRESSURE WASH
OPERATIVES WJA
QUALIFIED?**

Level 2 Water Jetting Technician Certificate

- | | |
|---|--|
| UK's first competency qualification for water jetting | Enhances productivity and safety |
| Accredited by ABBE / Ofqual | Supports succession planning and retention |
| Qualifies holder for CSCS card | Supports reputation and commercial success |
| 40/60 skills learning and assessment | |



**JOIN
THE WJA**

International and associate
members welcome

Contact us for details of
WJA-Approved Instructors in your area

✉ info@waterjetting.org.uk

☎ +44 (0) 208 320 1090

🌐 www.waterjetting.org.uk

Water Jetting Association - The Engine House,
Veridion Way, Erith, Kent, DA18 4AL, UK



Siemens renews major contract with **Brammer Buck & Hickman**

Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, is pleased to announce its contract with Siemens for the supply of tools, consumables, PPE and workwear has been renewed.

The initial contract with Siemens was awarded in 2010 and, since that inaugural date, the two companies have worked closely together to streamline the supply of MRO products and provide substantial cost savings; to date, these savings have been confirmed as over £6.5m. Overall sales since the start of the contract have been in excess of £85m.

The renewal of this contract with Siemens sees an increased emphasis on supporting sustainability, in line with its top position in 2021's DJSI Index (a globally established sustainability ranking) for its industry group.

The diversity of the Siemens contract is unusual. It represents the first UK wide contract to cover all Siemens' business units, addressing an array of industries including

healthcare, power generation, renewables, rail, traffic and more. To ensure consistency across all Siemens sectors and locations, Brammer Buck & Hickman developed a centralised customer service hub and maximised its digital platforms through the development of 21 business specific websites; over 70% of all transactions now go through a digital channel.

In addition to consistency, cost savings have been a key factor behind the success of this long term relationship. Several major achievements have been made in this area. The introduction of Brammer Buck & Hickman's Invend™ industrial vending machine solutions to a 23 acre Siemens' site reduced annual MRO consumption by £400k (30%). A workwear rationalisation project also produced substantial savings of £100k per annum, by reducing the number of manufacturers from 51 to one with a group wide core range supported with stock available for next day delivery. Brammer Buck & Hickman Insites™ - essentially a dedicated branch within a customer's premises - have also provided Siemens with cost savings at its Hull and Lincoln sites.

Commenting on the renewal of the contract with Siemens, Richard Hazel, Commercial

Manager at Brammer Buck & Hickman, said: "we value the relationship we have developed with Siemens over the past eleven years and the commitment Siemens have made to us in return. We have delivered considerable cost savings for Siemens on a range of tools, consumables, PPE and workwear and will continue to do so, whilst ensuring we support the company's sustainability strategy."

David Cullern, Brammer Buck & Hickman Sales Director, said: "I would like to thank all our colleagues who have worked so hard in delivering the level of service required for this contract to be renewed. We will continue to work closely with Siemens, with 2022 seeing an even greater emphasis on building sustainability into every transaction, from product sourcing to delivery.

In industry in general we face challenging times ahead, but Brammer Buck & Hickman has a proven track record that we should all be proud of."

Brammer Buck & Hickman is part of the Rubix group, Europe's largest supplier of industrial MRO products and services. For more information, please go to

<https://uk.rubix.com>

NSK Silver-Lube® bearings withstand wash-down fluids on bottling line conveyor

In operations where contact with process fluid is unavoidable, poorly specified bearings that fail prematurely can prove costly in maintenance labour and production downtime. For this reason, increasing numbers of food and beverage plants are turning to the beneficial attributes of NSK's Silver-Lube® bearing units. Silver-Lube® provides optimal protection against the ingress of wash-down water and detergent while simultaneously ensuring corrosion resistance.

Among those testifying to the advantages of Silver-Lube® is a market-leading milk processing and bottling plant. The facility was experiencing repeated bearing failures on five conveyor lines, where the company was changing bearings approximately every 16 weeks. With every replacement taking approximately one hour to complete, the plant invited NSK's team of experts to recommend

a solution.

As part of its AIP Added Value Programme, NSK's specialist engineers analysed the failed bearings, concluding that the ingress of water during the wash-down process was causing internal corrosion and premature failures. Further review of the application and operating conditions led the NSK team to recommend its proven Silver-Lube® housed bearing units.

The plant commenced a trial of Silver-Lube® bearings featuring food-grade grease on one of its bottling line conveyors, a solution that resulted in an immediate improvement and significant lifetime extension.

Silver-Lube® features durable and heat-resistant silicon rubber seals that protect against fluid penetration and prevent washout of the lubricating grease. Complementing the seal is a stainless steel flinger, which prevents the ingress of bacteria and helps the seal to resist



impact damage. Silver-Lube® bearings also comprise numerous corrosion-resistant components, including inserts with high-grade stainless steel rings and balls, cage, flingers, and set screws. Furthermore, the bearing insert sits within a high-strength PBT thermoplastic housing featuring a stainless steel grease nipple.

After the initial trial, the plant implemented Silver-Lube® housed bearing units on all five of its milk bottle conveyor systems. The result: a reduction in machine downtime, maintenance labour and replacement bearings costs, leading to annual savings of €7,625. Indeed, no failures of Silver-Lube bearings occurred for more than five years.

Importantly, Silver-Lube® bearing units can accommodate initial misalignment from mounting errors, making them ideal for bottling machines and conveyors used by the food and beverage industry. Additional attributes include: a paint-free resin housing to eliminate any risk of chipping or flaking; a cavity-free design to avoid 'bug traps' that might harbour bacteria or mould; a smooth finish to prevent dirt adhesion; and suitability for working temperatures from -20 to +90°C.



www.nskeurope.com

“Limitless” Growth For Bold Engineering Consultancy

The combined experience within the team at Hexa Consulting is unrivalled and has led to soaring success over the past two years. Flying fairly below the radar, the civil and structural engineering and transport planning specialist has achieved its results organically, nurtured by reliability and trust from within the industry.

The business, headquartered in Nottingham, centres on creating smart and innovative engineering while not being afraid to offer alternative approaches to traditional methods. It also focuses on providing green and sustainable schemes for its clients.

While the groundwork started in 2019, the business really kicked off in spring 2020 during the height of the Covid-19 lockdown. Despite the challenges of the pandemic, Hexa's founding members were able to take the business from humble beginnings to having a prime, city-centre office location with a thriving team of 25.

James Garment, co-founder and director, said: “From the outset, the creation of Hexa alone was a really proud moment for the founders, but for it to have grown to where we are now just two years later, we're thrilled. We've not been the loudest, instead concentrating on maintaining an outstanding service for our clients during our rapid growth – but now

we're ready to reveal what we've been doing.

“We want further growth, of course, but we also want it to be sustainable and we don't want to water down the quality that we have here, but our potential really feels limitless. The next few years is all about driving our ambitions forward while maintaining our core visions, and of course, keeping clients and our team as our key focus.”

While Hexa offers a multi-disciplinary approach to clients, it recognised the frustrations that can occur internally when one area succeeds over another.

For this reason, KPIs are not separated, and all achievements are shared and celebrated as a team effort, further solidifying a positive work environment. Additional benefits to employees include unlimited annual leave, fully flexible working options, and bonuses as well as opportunities to get involved with charity fundraisers.

David Strong, co-founder and director at Hexa, said: “We work actively in every sector from education, to health, residential and industrial – and we have been privileged to work on high value projects in each area. We have found that our agility and responsiveness has seen us take on larger corporations despite still being a relatively new business ourselves. Our clients choose to work with us to avoid lengthy processes dealing with multiple departments. We simplify the complicated.

“In terms of our team, we employ the right people and trust their experience. Everyone so far has been linked to the business through an existing colleague, because it's about finding the right fit, with people who want to work with us. And we are seeing proof that this method works with people leaving longstanding positions to join Hexa and be part of something new.”

For more information, please visit :

<https://www.hexaconsulting.co.uk/>





Need an Air Receiver on a short lead time? Think Hi-line

For any company looking to improve the life and energy efficiency of its compressed air system, Hi-line Industries now offers its range of class-leading Vertical Air Receivers from stock to help factories and plants quickly take advantage of these innovative devices. Hi-line's high-quality painted and galvanised vessels are available immediately at extremely competitive prices.

Vertical Air Receivers are a type of pressure vessel that receive air from the compressor and hold it under pressure for future use. Storing compressed air allows the system to average the peaks in compressed air demand over the course of a shift, delivering steady air flow. The air in the tank is even available when the air compressor is not running. Importantly, Hi-line's Vertical Air Receivers can reduce the load/unload cycles on the system compressor, potentially extending its service life and reducing maintenance/repair. In addition, introducing an air receiver tank markedly improves the energy efficiency of a compressed air system, typically by reducing any wasted compressed air from excessive sump blowdowns and lowering the pressure requirements for the air compressor and air network. All of these benefits contribute to lower total cost of ownership (TCO).

Four sizes of Hi-line Vertical Air Receiver are in stock at to suit virtually any application: 300, 500, 1000 and 2000 litre variants. Immediate shipping or collection is available from the company's UK headquarters and

manufacturing facility, which is centrally located in Burton on Trent, Staffordshire, with excellent access to the motorway network.

A core component of Hi-line's Vertical Air Receiver is the company's Activated Carbon Tower, which contains either zeolite minerals or carbon to suit the suit the application. Activated Carbon Towers adsorb contaminants like oil vapour and odour, making them an increasingly popular addition to compressed air circuits, particularly in sectors that demand high purity levels, such as food and beverage, oxygen/nitrogen generation, electronics, pharmaceuticals, and healthcare. It is possible to achieve "technically oil free air" without the expense of an "oil free" compressor, which in some applications is a requirement e.g. food and beverage, pharmaceutical etc.

All of the Vertical Air Receivers in stock at Hi-line are PED compliant to 2016/68/ EU and powder-coated in compressed air blue (RAL 5015). Built by robots to ensure consistent, high-quality welding, the vessels are extremely robust in design and come with a 10-year warranty. 5mm plate and fittings are present throughout the build, ensuring that the Vertical Air Receivers are double the weight (pro rata) of standard catalogue vessels.

Hi-line's Vertical Air Receivers offer 11 bar working pressure. However, the company

can manufacture high-pressure vessels up to 400 bar, as well as customised tanks and vessels in any colour or design code in line with customer requirements. Hi-line can also supply the vessels with or without fitting kits to suit individual preference. Gauge and drain are included, along with a safety valve to suit the operating pressure.

Hi-line Industries Ltd,
Green Street,
Burton on Trent,
Staffordshire DE14 3RT
Telephone: 01283 533377
Fax: 01283 533367

enquiries@hilineindustries.com

www.hilineindustries.com

Further information is available from:





Snap-on's Level 5™

tool management system guards against FOD

For engineers and technicians working in many industrial sectors FOD will always be a real and present danger.

Keeping track of every tool and piece of equipment, especially when several storage cabinets are in use, can be challenging.

Snap-on Industrial's Level 5™ automated total asset management system minimises the risk of FOD by constantly tracking every tool, detecting which tools have been removed or returned.

It also enables engineers and technicians to find every tool they need, when they need it, saving time and easing stress.

Engineered to track individual tools by user, without bar codes, scanners, RFID tags or other add-ons, the system works at the speed its users demand.

Level 5™ boxes are network ready, using either Ethernet or wireless connection. Powerful software enables users to review activity at all boxes in their location from one central computer, avoiding the need to inspect each box.

Major benefits of the system include:

- No individual tool scanning required;
- No RFID tags to install or replace;
- No limitations on tool size;
- Intuitive interface, via touchscreen;
- Audible voice confirmation of tool removal and replacement;
- Automatic locking for maximum security;
- Errors announced and displayed to indicate incorrect tool position or advise when a drawer is not closed.

Level 5™ boxes are equipped with Keyless Access Control, giving users the ease of

access they need but with security built in. The control system can be configured with magnetic cards, barcodes, PIN numbers and proximity cards.

Says Richard Packham, Director UK & Europe for Snap-on Industrial: "Snap-on's automated system takes tool management to an entirely new level, giving workshop managers and other authorised users easy access to the tools they need while protecting against foreign object damage.

"The ability to monitor several boxes from one central computer offers managers a huge time saving advantage."

For technical details visit: snapon-industrial.co.uk; call (01536) 413904 or e-mail: ukindustrialmarketing@snapon.com

Doors Contract For Helicopter Company Completes

Hart Doors has high number of opening and closing cycles processes where surplus completed an while operating in frequent use, busy traffic material is removed installation of five conditions. from castings. Speedor Minis, the This required high-performance "Due to its superior design, required with such a door that interior roller door a high level of duty, the Speedor Mini is capable was capable that delivers higher operating speeds than of thousands of operations week after week, of a fast open/ traditional sectional doors or roller shutters. year after year and requires lower maintenance close cycle, a The client is an international manufacturer of and repair costs," says Carl Crossman, Hart's high level of usage helicopters. Project Manager with low maintenance and be capable of withstanding pressure differentials on either side of the opening."

The installation required a reliable, internal, "The Minis have been installed in abrasion and fettling booths to mitigate against use in high traffic situations. Speedor Mini environmental hazards caused by dust was selected as it is constructed to sustain a emissions from the grinding or fettling



**Contact: www.hartdoors.com
t: 0191 214 0404**

KEEP TRACK OF YOUR TOOLS

WITH THE **LEVEL5** TOOL CONTROL SYSTEM

 **ORGANISATION**
 **VISIBILITY**
 **ACCESS CONTROL**
 **ASSET MANAGEMENT**
 **AUTOMATION**



To take control of your Tool Management.

+44 (0)1536 413904
industrialuk@snapon.com
snapon-industrial.co.uk

SAFE. SECURE.

Snap-on
INDUSTRIAL

Safe for use in hazardous areas, ATEX certified installed LED lighting is now available from Wolf Safety



Wolf Safety have introduced a powerful new range of ATEX certified LED installed lighting, designed for permanent use in potentially explosive atmospheres.

The world's leading manufacturer of portable and temporary ATEX and IECEx certified hazardous area safety lighting, Wolf have been keeping people safe for 110 years.

The company's designers and production engineers have now brought their vast knowledge and expertise to bear on a new range of highly effective LED installed lighting, which is safe to use in Zones 1 and 21 hazardous areas.

The range includes:

- **Linear luminaires featuring the new, revolutionary Directional Linear Optics**

- (DLO) or standard Forward Facing Array LED configurations (with battery back-up emergency versions also available);

- **Floodlights with a maximum light output of up to 25,932 lumens;**

- **Bulkhead lighting, also featuring DLO (with battery back-up emergency versions also available);**

- **High bay lighting.**

DLO directs light exactly where it's needed, is ideal for use in specific, close-up workspaces, reducing glare to avoid people being 'blinded' by the emitted light, while its excellent colour definition facilitates safety critical hazardous area tasks.

Forward Facing Array (FFA) technology can be preferable for safely illuminating large hazardous areas which need wide, even and bright light coverage, where lights are mounted away from people

or at heights where glare and intensity can't have an adverse effect on the working environment.

In the unique position of being able to offer both DLO and FFA lighting, Wolf can supply the most effective lighting solution for every hazardous area workplace.

Says Miles Jackson, Wolf Safety's Sales and Marketing Director: "We know that users of Wolf products trust us to keep them safe, especially when they need to work in highly volatile atmospheres and other hazardous workplaces.

"All the values people expect from Wolf and are seen in our portable and temporary lighting ranges can now be found in this new installed lighting range, which we are proud to introduce."

www.wolfsafety.com



Wolf

NEW ATEX INSTALLED LED LIGHTING FROM WOLF SAFETY

A full range of Zone 1/21 Installed Hazardous Area LED Lighting, introducing Directional Linear Optics (DLO), and including Linears, Floods, Highbays and Bulkheads

WWW.WOLFSAFETY.COM | 0114 255 1051 | INFO@WOLFSAFETY.COM

maintec

THE UK'S PREMIER MAINTENANCE ENGINEERING EVENT

NEC, BIRMINGHAM • 8-9 JUNE 2022

“
Maintec was a great show for us.
A firm date in our diary for
years to come.

Business Support Manager,
Ultimo Software
Solutions Ltd

”

For Industrial, Buildings & Supply Chain Maintenance Engineering

Register for a free visitor pass
www.maintec.co.uk

1 Pass // 4 Events

Event Sponsor



Registration Sponsor



Keynote Theatre Sponsor



Official Media
Partner:



Part of:

manufacturing
+ engineering week

Colocated with:

design engineering expo engineering expo manufacturing expo

Protecting Your Plant

Instant Shutdown **Before** Things Go Wrong

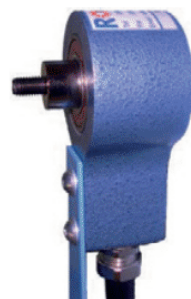
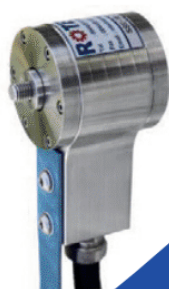


Motion Sensor's For All Industries

Rotech Motion Sensor's can be used whenever information or monitoring of shaft rotation, position, direction, speed, slip etc is required!

Rotech Motion Sensor's can be used for indication, control, interlocking, protection, sequencing, alarm initiations and many more functions!

Rotech Motion Sensor's can be used wherever materials are transported or processed
By conveyors, elevators, screws, mixers, etc!



FOOD
CEMENT
STEEL MILLS
ORE
FERTILISERS
ASH
GRAIN
COAL
SAND
WATER TREATMENT
OFFSHORE
ROADSTONE
STONE
MINES
POWER STATIONS
AGGREGATE ...AND MANY MORE!

ROTECH FOR RELIABILITY

Why Accept Anything Less?

ROTECH SYSTEMS

Web: rotechsystems.co.uk

Email: sales@rotechsystems.co.uk

Tel: +44 (0)151 356 2322



Monitoring the world

TLV LAUNCHES QUICKSTATION QS10 STEAM TRAP STATION

Cheltenham, UK – March 2022 – TLV Euro Engineering has launched QuickStation™ QS10, a compact, reliable steam trap station for use with TLV QuickTrap® to allow for condensate drainage from steam mains, tracers and light processes, which is suitable for use in pharmaceutical, food and beverage applications or where ease of steam trap installation and maintenance is critical.



The QuickStation QS10's compact, all-in-one design and reliable operation enables simple, inline trap installation in either the horizontal or vertical plane in minutes. It is constructed from stainless-steel for durability and corrosion resistance and

The four models in the QS10 range are offered with multiple piping arrangements and either single or double upstream/downstream isolation valves. The double isolation, along with optional BD2 blowdown valve, allows operators to blow out condensate/steam to prove safe isolation and allow for a safe replacement. An integrated strainer helps to prevent equipment damage or production



By making trap installation, replacement, and maintenance simple, costly steam trap problems can be rectified quickly, preventing energy loss, preventing system damage and improving energy efficiency.

For further information on the QuickStation QS10 and other steam solutions, call TLV Euro Engineering on +44 (0)1242 227223, email sales@tlv.co.uk or visit www.tlv.co.uk.



is suitable for applications with maximum operating temperature of 185°C and maximum operating pressure of 10 barg.

issues due to entrained material, and an integral check valve prevents backflow.

TLV Euro Engineering also offers a range of precision-engineered QuickTrap models compatible with QuickStation for numerous applications, including its renowned Free Float® traps to minimise steam loss and save energy, and balanced pressure thermostatic and thermodynamic models for specific applications.





Three Major Accreditations

Confirm Lanemark Combustion Engineering's Quality, Environmental And Manufacturing Performance

Process gas heating specialists Lanemark Combustion Engineering Ltd. are delighted to announce the achievement

of three major industrial international accreditations which, simultaneously, define the company's management, environmental and health and safety commitment.

"By being able to hold ISO 14001 Environmental Accreditation, ISO 45001 Health and Safety Accreditation and ISO 9001 Quality Accreditation at the same time reflects well on both our organisation and, of course, the people within it," says Alan Thompson, Lanemark's Operations Director.

ISO 14001 certification demonstrates Lanemark's commitment to controlling environmental impact, meeting relevant legal obligations and its focus on continuous improvement. Alongside this, ISO 45001 shows specific compliance with Health and

Safety law and reflects on the methods and procedures across a wide range of company activities. Similarly, ISO 9001 demonstrates Lanemark's focus on delivering consistent, high quality products and services.

"The fact that recent audits have confirmed that, in each case, our methods and performance comply with these major global standards has a direct impact from both an internal and external perspective," comments Jeff Foster, Sales Director.

"Increasingly, our customers are looking to their suppliers to deliver fully in these key areas so, apart from helping to ensure that we are meeting clearly structured goals, these certifications underpin our sales efforts and ongoing work with customers across all markets," he adds.

Having been heavily involved in the approval processes, Lanemark's Joanne Topp, Integrated Management System (IMS) Administration Officer, and Lee Carroll, Health & Safety/IMS

Training Coordinator, are now responsible for the ongoing implementation of the three standards – each of which will be subject to periodic assessment and audit in the future to ensure the high standards defined are being fully maintained.

"Since our formation in the 1980's, we have always been very conscience of the three disciplines that these awards define," adds Jeff Foster.

"As a specialist manufacturing organisation, with customers ranging from brewing and surface finishing to petrochemical processing, and working in the highly controlled field of gas engineering, we have long been aware of our own and our customers' requirements. Now, being able to hold all three certifications concurrently demonstrates the performance and gains that can be achieved by our approach – to the benefit of all concerned," he concludes.

Email : info@lanemark.com
Website : www.lanemark.com

VIEW FULL MAGAZINE ONLINE

- + Extra Articles and features
- + Full Business Directory
- + Much More...

EMSOnline

www.engineeringmaintenance.info

All of our articles are available to read online today!
Scan the QR code to go directly to the site



Visit Us Online

www.engineeringmaintenance.info



LANEMARK Gas Process Burners



FD-C high turndown oven/
dryer air heating burners.



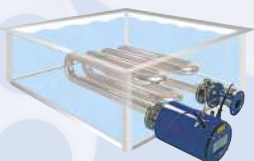
FD-C (GA) modulating gas +
air process air heating burners.



FD-E low cost high turndown
oven/dryer air heating burners.



Midco HMA high efficiency,
high turndown, air replacement
or "make-up" air heating burners.



TX high efficiency small diameter
immersion tube tank heating
systems.

Lanemark gas burner systems offer users reliable, high efficiency, process heating solutions.

FD Series Packaged Oven/Dryer Burners

- Specifically designed for process air heating applications in convection ovens and dryers
- High turndown/short flame lengths providing accurate process temperature control
- High efficiency gas + air modulation, gas only modulation and simple high/low control options
- Heat Input Range: 9 kW – 880 kW

TX/TRX Series Gas Fired Process Tank Heating Systems

- High efficiency (80%+) heating of all types of spray and dip process tanks
- Compact high efficiency small diameter immersion tube heat exchangers occupying minimum tank space
- Accurate performance modelling using Lanemark TxCalc design software
- Heat Input Range: 15 kW (1½") – 730 kW (6")

Midco DB Series Air Replacement or "Make-Up" Air Heating Burners

- Direct fired, high efficiency burner systems, for high volume air heating applications such as paint spray booths, ovens and dryers.
- Supplied either as Midco burner heads for OEM system integration or as complete packaged systems including modulating gas valve trains and controls
- Wide range of firing rates to suit alternative temperature rise and air velocity system requirements
- DbCalc system design software

Lanemark Combustion Engineering Limited

Lanemark House, Whitacre Road, Nuneaton, Warwickshire CV11 6BW United Kingdom
Tel: +44 (0) 24 7635 2000 Fax: +44 (0) 24 7634 1166 E-mail: info@lanemark.com
www.lanemark.com





BOILER HIRE SPECIALISTS

The UK's largest provider of industrial
Steam and Hot Water boiler plant.

Fast, efficient Nationwide service for planned or
emergency cover, R & D projects or extra capacity.



- *Steam boilers 150-15,880kg/hr*
- *Hot water boilers 30-8,000kW/hr*
- *Pressures from 7-17 bar*
- *Oil, gas or dual fuel*
- *Long or short term hire*
- *Full commissioning service*
- *24/7 support*



SALES • HIRE • EXPORT

+44 (0)1992 451629
www.kingsboilerhire.com



Introducing Classic from Fulton

The new Classic from heat transfer specialist Fulton builds on the successes of its 70-year boiler

manufacturing history to deliver a vertical steam boiler that is engineered to meet its customers' requirements. An evolution of Fulton's original vertical tubeless design, Classic is simple, compact and built to last, and is backed by more than 100,000 boilers installed around the world.

Available with gas, oil, or LPG/Propane burners, Classic is available with outputs from 100kW to 300kW (160 to 480 kg/h) at 10.34 Barg and efficiencies up to 84%. Full steam output is available from a cold start within

20 minutes, meaning Classic steam boilers can meet the rapid steam requirements for numerous industrial applications, including pharmaceutical, healthcare, food and beverage.

Classic uses proven technology to deliver steam economically, while maintaining the rugged, robust and reliable operation expected from a Fulton heat transfer solution. The pressure vessel is no less than 8mm thick; and the Classic's industry-leading vertical design eliminates tubes or coils that are subject to oxygen pitting, corrosion and burn out, ensuring decades of trouble-free operation.

To ensure minimal downtime and maximum production availability, ease of maintenance is also a given of the Classic's design.

Additionally, Classic steam boilers are exempt

from expensive and time-consuming SBG01 non-destructive testing requirements.

For further information on the new Classic steam boiler, visit www.fulton.co.uk, email sales@fulton.co.uk or call +44 (0)117 972 3322.



BUILDING ON OUR 70-YEAR BOILER MANUFACTURING HISTORY



INTRODUCING CLASSIC

With outputs from 160 to 480 kg/h, our all-new Classic builds on the successes of Fulton's 70-year boiler manufacturing history to deliver a steam boiler that is engineered to meet our customers' requirements.

Classic boilers use proven technology to deliver steam economically and with full output from a cold start within 20 minutes, while maintaining the rugged, robust and reliable operation expected from a Fulton heat transfer solution.

Scan me



To find out more about our all-new Classic steam boiler visit www.fulton.co.uk, email sales@fulton.co.uk or call +44 (0)117 972 3322.

 **Fulton**
Improving life through heat transfer solutions

Waste To Energy Plants Suffer From Unplanned Shutdowns Caused By Boiler Failure

A 2021 Prewin Network Unplanned Shutdown Survey has revealed that equipment failures in Waste to Energy (WtE) and Biomass plants were responsible for a total of 22.9 days of unplanned shutdowns in 2021, and 43% of equipment failure classifications were boilers.

Furthermore, boilers alone were responsible for an average of 9.9 days of unplanned shutdowns in 2021, with the radiation part accounting for 49% of boiler failures, followed by the economizer (28%), the convective part (20%) and other (3%).

These latest statistics provide an insight into asset performance and reliability, highlighting boilers as one of the most problematic pieces of equipment for plant owners to manage. This article discusses one of the most common contributing factors behind boiler failure: corrosion.

The Boiler Problem

Typically designed for medium or large installations, boilers produce steam by burning biomass, recycled biomass, or pre-treated industrial or urban waste. Fuel flexibility offers related cost reduction, but results in boiler corrosion.

However, mixed fuel environments create extreme conditions that can predispose equipment to damage. There is a wide variety of boiler design: horizontal grate, inclined grate, bubbling fluidized bed, circulating

fluidized bed, and so on. If the fuel contains plastics and other chemicals then chlorine, sulphur, and other alkali and heavy metals can be generated, dramatically increasing the thickness loss rate through corrosion mechanisms.

Without proper preventative care, these conditions can lead to unexpected outages and high maintenance costs, reducing the efficiency and emission benefits of these boilers.

Boiler Corrosion Mechanisms in WtE and Biomass

Increasing efficiency of WtE boilers means increasing pressure and temperature inside the boiler tubes. The combination of new fuel types containing higher levels of corrosive agents with these higher temperatures and pressures can lead to material softening. Accelerated fireside boiler corrosion starts on the unprotected steel heat exchange surfaces of the super-heaters and erosion resistance declines.

Most corrosion protection mechanisms consist of generating a corrosion barrier on the base metal by forming an oxide layer. The challenge inside WtE boilers is that this layer is quickly eroded, forcing the formation of another layer, and consequently leading to the erosion-corrosion phenomenon. Erosion-corrosion thinning can happen quickly when harsh conditions are combined with soft or poor erosion resistance materials.

WtE Boiler Corrosion and Erosion Protection

Refractory protection is the first defence against corrosive flue gases and can also have excellent erosion properties. However, its heat exchange properties are limited as the thermal efficiency is low. Refractory alloys can be used, but due to the excessive material costs and limited erosion resistance, the implementation of a surface protection layer is often a more cost-effective solution.

The use of thin ceramic coatings seems like an attractive approach, although often, the thermal expansion mismatch and the fragility of such coatings make this solution unreliable. The coatings tend to crack, and corrosion can develop underneath the protective layer which is then likely to peel off.

The Solutions

Weld Metal Overlay (WMO)

Many boilers are designed and fabricated with weld metal overlay (WMO) installed in critical areas at risk from erosion or corrosion.

Often, over time and during continued operation, accelerated corrosion is then observed on the unprotected tubes beyond the WMO section, for example in the second pass (this is commonly referred to as 'corrosion creep'). In this case the scope of tube area protected by a corrosion barrier needs to be extended.

In many instances, the conventional solution is to have the affected sections removed and replaced with new tube panels which are protected with a WMO corrosion barrier applied in the shop. However, replacing water wall sections can cause long downtimes and additional problems, such as distortion and surface geometry irregularities at the butt weld, among others.

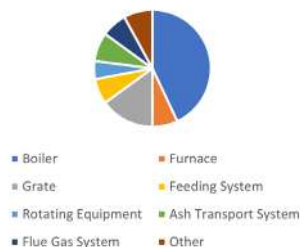


WMO is particularly challenging in instances where external furniture is involved.

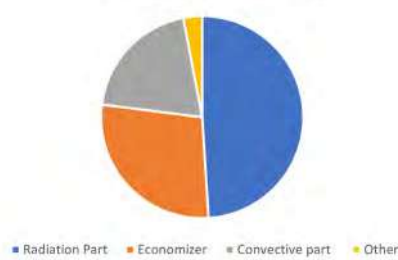
The alternative of field WMO application on-site is difficult to manage from a quality perspective, may not be possible



2021 Failure Classification



Boiler Component Failure

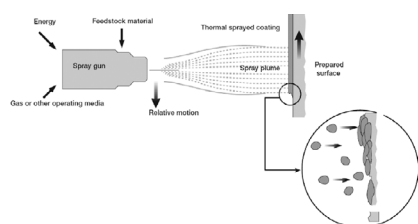


on thinner tube sections, and is time consuming, extending plant stoppages.

In other cases, in certain parts of the boiler the applied WMO can start to show signs of accelerated wastage due to corrosion after only one or two years in service. This original investment needs to be protected from further rapid degradation which risks the integrity of the underlying water wall.

Thermal Spray

Thermal spray technology has been used for the application of corrosion resistant alloys (CRAs) in the power industry since the 1980s, spraying metal alloys



widely used in the WMO process. However, it was quickly understood that the thermal spray process itself negatively affects the properties of the alloy being sprayed.

The resulting as-applied cladding, when using off-the-shelf metal alloy wires and conventional thermal spray equipment, was permeable. This permeability due to porosity, high internal stress, encapsulated oxides, and lower bond strengths with the base metal created a perfect pathway for corrosion and premature failure. Quite the opposite of the desired result.

These early failures resulted in a universal distrust of thermal spray technology. At the same time, this provided a huge opportunity: is it possible to improve the bond strength and reduce the permeability, porosity, oxides, and internal stress of the as-applied thermal spray coating?

High Velocity Thermal Spray (HVTS) Alloy Cladding engineers and material scientists at Integrated Global Services (IGS) successfully developed a solution to this problem by redesigning both the conveyancing equipment used to apply the metal alloy and the metal alloy feedstock material itself.

Bond strength

The problem of the bond strength between the thermal spray applied metal particles and the substrate was solved by increasing the spray velocity and improving the quality of the substrate surface preparation.

When the atomized molten metal particles propelled by the supersonic air flow hit the suitably prepared substrate, they splat like a pancake and are embedded into the substrate, forming very tight bonds.

Creating an impermeable barrier

When the atomised metal droplets leave the thermal spray gun, during their flight to the substrate, they are

exposed to the atmosphere and 21% oxygen. As a result, these high temperature molten droplets experience in-flight oxidation. If not controlled, when the metal droplets land on the substrate, they are deposited with a thin accompanying layer of oxide, compromising the permeability of the applied microstructure.

IGS has solved this issue of macro porosity with its High Velocity Alloy Cladding. Off-the-shelf alloys have been modified with unique alloying components to prevent in-flight oxidation. By mitigating oxide formation, the corrosion performance, and permeability of the protective barrier has been greatly improved.

HVTS Case Study: Weld Overlay Corrosion in a WtE Boiler in Switzerland

Overview

The Hitachi Zosen Inova (HZI) furnace installed at Renegia is an inclined moving grate four-pass waste to energy boiler with an external economizer. The boiler's thermal capacity is 47MW with the steam flow of 58 t/h and steam pressure of 41 Bar at 410°C.

Alloy 625 weld overlay was shop-applied on the fireside water wall panels to protect the WtE boiler tubes from fireside corrosion. After months of operation, an inspection revealed accelerated degradation of the Alloy 625 just above the grate.

Several solutions were considered to manage the boiler tube metal wastage and improve both the reliability and lifetime of the water walls, including replacement, field applied weld overlay and thermal spray.

The Solution

The HVTS application took place in 2017 on a 20m² area located on the left membrane wall at the very low furnace of the moving grate WtE boiler above the refractory. The plant also had a thermal Spray (TS) coating applied by a different vendor on the right-hand side of the membrane.

The Results

These areas were then inspected in 2018 to determine whether HVTS and other vendor's TS were successful at stopping the weld overlay (WMO) degradation. The inspection of the HVTS/WMO interface showed that the area clad with IGS HVTS was no longer affected by corrosion. Unprotected Alloy 625 WMO and other vendor's TS, on the other hand, both continued to degrade.

It was decided that the scope would be extended

and that HVTS alloy cladding would be applied to a further 20m² area in 2019. An inspection later that year, in August 2019, confirmed the following. The areas protected with high-velocity thermal spray (HVTS) alloy cladding were not exhibiting any pitting corrosion or wastage. Adjacent unprotected Alloy 625 weld overlay sections were showing signs of wear and degradation.

A further inspection in 2020 has confirmed that HVTS IGS5470 is performing in line with expectations and is protecting weld overlay areas from further corrosion.

Client Comment

Markus Benz, head of maintenance at Renegia Zentralschweiz AG, commented: "IGS has been selected in November 2017 to apply ~20m² of their IGS material using their HVTS technology. They mobilized efficiently and performed within the tight requested schedule the expected scope of work.

After ten months in operation, a short inspection of the waste to energy boiler was performed in September 2018 confirming the good performance of the coating. As a result, another area was ordered for application in January 2019. In early January, a deeper inspection confirmed the good overall behavior of the cladding after 14 months in operation.

The protected area has been doubled so that we expect to operate safely until our next turnaround in 18 months. IGS has successfully applied the contracted scope within the critical path in a highly professional manner, with reliable and transparent communication."

Summary

The findings outlined in the 2021 Prewin Network Unplanned Shutdown Survey emphasize the importance of asset maintenance and protecting process materials from degradation and loss of performance. Unplanned shutdowns can have a significant financial impact both in lost productivity, and emergency remedial works.

There are several solutions available on the market, namely Weld Metal Overlay (WMO) which is a reliable albeit time consuming and costly method. Thermal Spray is another solution which in theory is a better alternative to WMO but can lead to premature failure. HVTS is the next evolution of thermal spray coatings which provides reliable, long-term protection from corrosion.

As asset failure, particularly boiler failure, continues to be a costly problem for WtE plant managers, it is crucial that preventative measures are taken to improve asset life, reduce downtime, and deliver significant savings.

Emerson Condition Monitoring Software Expands Visibility to Asset Health

Global software and technology leader Emerson is updating its machinery health platform to enable customers to migrate to a more holistic, modern interface for condition monitoring. New support brings data from edge analytics devices directly to key personnel inside and outside the control room to help them more quickly identify and address a wide range of common equipment faults before they impact plant availability. In some industries, Emerson estimates every 1% gain in availability is worth approximately \$8.4 million of additional profit margin per year.

Plants around the globe have faced increasing shortages of experienced personnel to monitor and manage equipment reliability. Today, 58% of multinational manufacturers are having difficulty acquiring skilled talent, according to a 2021 study from Workforce Institute at Ultimate Kronos Group. To help small teams make the most of limited resources, Emerson

has continuously evolved AMS Machine Works' condition monitoring technologies for better diagnostics at the industrial edge. Increased connectivity to external systems provides personnel with an intuitive, holistic asset health score supported by maintenance recommendations to help reliability teams quickly see what is wrong and how to fix it. Intuitive information and alerts are delivered directly to workstations or mobile devices to provide decision support, helping maintenance personnel make the best use of their time.

"As smaller groups of experienced reliability personnel are tasked with supporting an increasing scope of work, they need access to immediate insights and faster, more comprehensive information to prevent downtime and keep plants running at peak performance," said Erik Lindhjem, vice president of reliability solutions at Emerson.

"The newest version of AMS Machine Works seamlessly interfaces with edge analytics

devices to help teams of any size stay aware of the health of all plant production assets, from critical to balance-of-plant, no matter where they may be."

The newest version of AMS Machine Works adds support for Emerson's AMS Asset Monitor, which provides embedded, automatic analytics at the edge using patented PeakVue™ technology to alert personnel to the most common faults associated with a wide range of assets. AMS Machine Works also supports open connectivity using the OPC UA protocol to make it easier to connect to external systems such as historians, computerised maintenance management systems, and more to help close the loop on plant support from identification to repair and documentation.

For more information on Emerson's machinery health prediction systems,

emerson.com/ConditionMonitoring.





We pioneer motion

How my production line achieves the perfect flow



red dot winner 2021



OPTIME

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

www.schaeffler.co.uk/OPTIME

SCHAEFFLER

The Third Generation Of Vibration Monitoring:

MBVI (Model-Based Voltage and Current Analysis)

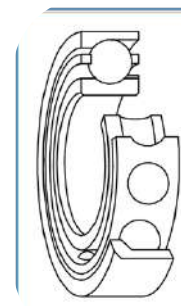
How a new generation of condition monitoring technology is bringing new insights into machine behaviour

Condition Monitoring has long been understood to bring large benefits to plant operations, reliability and maintenance, and the most commonly used technique is Vibration Monitoring. We can think about vibration monitoring as having developed in three separate phases – each one of which has led to new insights and understanding of machine behaviour.

The first generation – proximity probes for use in journal bearings prompted understanding of shaft bending resonant responses (eg 1x shaft speed)

Proximity probes such as those developed by Bently Nevada in the 1960s measure the radial movement of the shaft relative to the machine casing and bearing journals. These systems were mainly used to identify problems with large, supercritical machines like steam turbines and generators, where deflections of the entire shaft can be

significant – effectively the shaft can be regarded as flexible. Observations of the



Stage	Description	Action
1	Increasing ultrasonic vibration at more than 20 kHz, requiring specialised techniques	Early warning, start continuous monitoring
2	Defects ring bearing components at natural frequencies 5-20 kHz	Still minor damage, monitor more closely
3	Bearing defect frequencies and harmonics, with increasing sub-harmonic sidebands as damage progresses	3 month warning point, start proactive tasks and monitor for effect
4	Significant shaft speed component, as well as harmonics. As sub-harmonic sidebands build up, discrete peaks disappear in rising noise floor	Replace bearing as soon as possible to avoid failure

movement of the shaft position relative to the machine bearing housings led to the development of Rotor Dynamics as a separately identifiable mathematical discipline.

A key area of this work focussed on the different lateral bending modes of shafts, each with their own distinct resonant frequency. This also led to new insights into understanding of elastohydrodynamic lubrication.

The second generation – seismic sensors prompt deeper understanding of rolling element bearing failures (eg n x shaft speed)

Whereas proximity probes measure relative movement between different

parts of the machine, seismic sensors (most frequently piezo-accelerometers)

detect movement of the entire machine in space. These proved to be much more useful for monitoring progressive deterioration of Rolling Element bearings. It was discovered that sensors with a high natural resonant frequency (around 20kHz+) were able to detect signals associated with the very early stages of deterioration in rolling element bearings. This led to a deeper understanding of the deterioration process, which became classified into four distinct phases, as shown in figure 1.

Figure 1- categorisation of rolling element bearing stages of deterioration.

The third generation – MBVI systems,

Figure 1

sensing changes in torsional behaviour using the electric drive motor as a sensor, lead to new understanding of sub-harmonic behaviour (eg 1/n x shaft speed)

Model-Based Voltage and Current (MBVI) systems effectively use the motor as a sensor. Whereas proximity probes and accelerometers detect signals in a radial

occurring machine phenomena

Advantages of MBVI systems include the ability to monitor inaccessible assets – because sensing is done in the switchgear (see figure 3) which is always accessible even when the machine itself isn't; sensitivity to things conventional VA doesn't see so clearly (torsional signals – including corrosion,

seeing electrical phenomena and energy consumption not visible to conventional Vibration Monitoring.

Figure 3 - Faraday Predictive S200 MBVI unit mounted inside motor starter cabinet

So What?

While there is no one Condition Monitoring technology that is perfect for every situation, MBVI systems offer a very wide range of coverage (Mechanical and Electrical and operational) across the entire machine (motor + transmission + driven equipment) all from one device, and have advantages when trying to monitor inaccessible machines. They also have advantages when monitoring Inverter driven machines.

For more information, contact Geoff Walker at Faraday Predictive – info@faradaypredictive.com, or 0333 772 0748.

MBVI systems (ie using the motor as a sensor) see similar phenomena to accelerometers but with differing sensitivities

Feature	Accelerometer sensitivity	Motor sensitivity	Comments
Unbalance	●	●	
Misalignment	●	●	
Looseness	●	●	
Rubbing	●	●	Integer sub-harmonics
Rolling element bearings	●	●	
Journal bearings	●	●	
Flow turbulence	●	●	
Cavitation	●	●	
Internal corrosion	●	●	
Belt drives	●	●	

The motor outputs are generally MORE sensitive to torsional signals and LESS sensitive to radial signals than conventional accelerometers.

They are surprisingly sensitive to both journal bearing phenomena and REB phenomena.

And of course also provide info on electrical phenomena

or axial direction, the variation in motor current associated with variations in load create a signal related to torsional vibration. The same phenomena that are detected by conventional Vibration Analysis systems are also detected by MBVI systems, but with different sensitivities. Certain phenomena such as rubbing friction, flow turbulence and belt drive behaviour, show up much more clearly in the torsional domain, which results in new insights into machine behaviour.

Figure 2 - Comparison between the signals created in radial vs torsional directions for various commonly

belt drives, and rubbing); plus of course



Figure 3



Intellinova® Parallel EN

Intellinova® Parallel EN is a high-performance online system, perfectly suited for condition monitoring of industrial equipment with high availability demands.

Suitable for a wide range of applications

The various system versions can be combined to provide a suitable number of measuring channels for any application. With parallel and synchronous condition measurement on all channels, the system is a perfect fit where measurement is time-critical due to short process cycles, e.g., rolling mills, railcar dumpers, press nips, winders, or lifting and hoisting equipment such as cranes or drop sections.

Implementing HD condition monitoring technologies, the system is the ideal choice for gearboxes - including planetary gears - and low-speed applications (from below 0.1 RPM) such as agitators, crushers, or conveyors. It is also suitable for more straightforward applications like motors, pumps, and fans.

Intellinova Parallel EN can be run alongside its siblings in the Intellinova family of online systems in an integrated system or as stand-alone units.

Supreme condition monitoring efficiency

Intellinova Parallel EN continuously monitors your critical equipment, capturing relevant events without delay. With the DuoTech accelerometer, all measuring channels can be used for vibration and/or shock pulse monitoring. Combined with multiple RPM channels, data acquisition can be made successfully on machinery with complex drives, even under variable operating conditions.

The system tracks and manages changes in process and operating conditions, providing a reliable snapshot of equipment condition for entire machines. Measurement assignments can be set up to trigger individual channels or multiple system units in parallel and synchronously. The Condmaster diagnostic and analysis software offers user-defined filter settings, live spectrums, and live views of the state of all connected devices.



Typical applications:

- Wind turbines
- Rolling mills
- Railcar dumpers
- Converters
- Agitators
- Crushers
- Conveyors
- Press nips
- Winders
- Cranes
- Drop sections

Powerful measuring techniques

Intellinova Parallel EN implements the most sophisticated and efficient technologies available for monitoring vibration, bearing condition and lubrication:

- HD ENV, high definition vibration enveloping
- SPM HD, high definition shock pulse monitoring
- SPM LR/HR HD, shock pulse measurement method
- Broadband vibration measurement according to ISO 2372 or ISO 10816
- FFT with machine fault symptom evaluation
- User defined measurements via analog inputs or OPC, e.g., pressure, flow, load etc.

Industrial versatility

This robust monitoring unit is designed to manage demanding industrial environments and complex operating conditions in all industries.

- Wireless solution
- Continuous event capturing
- Flexible measurement and alarm management
- Digital and RPM inputs for event-triggered measurements, status outputs for alarm indication
- Various integration opportunities via REST API, OPC UA, etc., for exchange of process parameters and other data

Characteristics	INSEN4	INSEN8	INSEN16	INSEN32
Powder-coated steel cabinet	360x240x155 mm (14.2x9.4x6.1 in)	400x400x210 mm (15.7x15.7x8.3 in)	500x600x210 mm (19.7x23.6x8.3 in)*, **	500x600x210 mm (19.7x23.6x8.3 in)**
System unit	268x158x43 mm (10.6x6.2x1.7 in)	288x230x40 mm (11.3x9.1x1.6 in)	275x400x40 mm (10.8x15.7x1.6 in)	System unit for INSEN16 x 2
Measuring channels***	4	8	16	32
Analog inputs	2	2	4	8
RPM inputs	4	4	8	16
Digital inputs/outputs	2/2	2/2	4/4	8/8

*) Also available in stainless steel enclosure, 600x600x210 mm (23.6x23.6x8.3 in). **) Also available in 19 inch rack, 482x132(3U)x365 mm (19x5.2(3U)x14.4 in).

***) Both vibration and shock pulse measurements can be performed using DuoTech accelerometers.



Condition Based Monitoring

Intelligent tools to monitor, analyse & interpret vibration, bearing condition, temperature and overall machine health.



9041 Ultra II

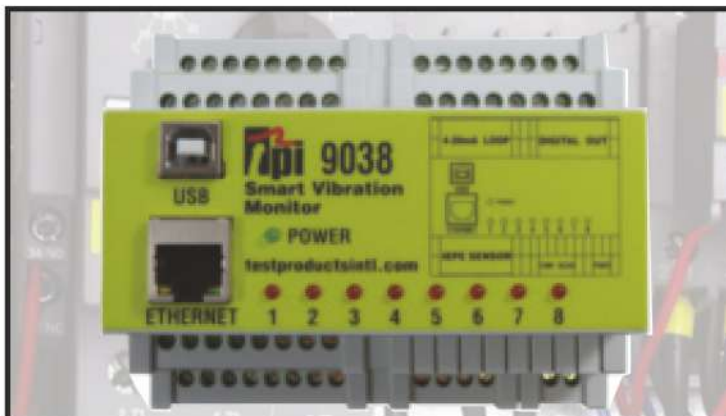
Represents the very latest in easy to use high specification maintenance tools, offering extremely high levels of functionality and capability at a very affordable price!

As an advanced data collector and Dynamic 2 plane rotor balancer designed for plant and asset inspections, the Ultra II does it all.

Intelligent Vibration Analysers Analyse • Interpret • Save

Condition based maintenance (CBM) is not just a technique for avoiding breakdowns. By identifying faults such as out of balance, misalignment, worn bearings etc. you can significantly reduce operating costs:

- Lower energy costs (out of balance and misaligned machines need a lot more unnecessary energy)
- Prolong component lifetimes (e.g. by reducing bearing wear)
- Lower repair costs (replacing worn bearings before they fail is a lot cheaper and much safer!)
- Reduce downtime (increase profitability)



Smart Vibration Monitor 9034 & 9038 Online/Fixed Vibration Monitoring.

Multi-channel low-cost unit monitors plant with local alarms, connects to high functionality PC analysis software AND connects to cloud-based monitoring and analysis software.

Extremely cost effective: lowest "cost per channel" industrial vibration monitor/analyser.

tpieurope.com

+44 (0) 1293 530196

TPI Europe p12.v01.22_p

MEASURE • MANAGE

Solutions for Pumps, Fans & Motors

If you have Pumps, Fans and Motors you need TPI Vibration Analysers!

- Traditionally, vibration analysis has been a specialist field and typically performed by vibration consultants using very expensive equipment.
- Vibration analysers from TPI allow anyone to perform meaningful vibration analysis at an unexpectedly low cost.
- Easily and affordably detect worn bearings, faulty gearboxes, unbalance, misalignment and looseness.
- Identify the vibration problem: 2/10Hz to 1kHz for a clearer understanding of unbalance, misalignment or looseness
- 1kHz to 10kHz covers the Bearing Condition to identify bearing wear, damage, lubrication issues etc.
- Identify complex issues: 800-line spectrum with zoom and cursor.
- By detecting early signs of machine failure, machinery can be repaired or replaced before an expensive breakdown occurs.



Pumps

This style pump can have bearing problems or balancing issues. The motor is bolted directly to the pump and does not normally have alignment issues.



Motors

The motor and pump are bolted to the frame and attached with a coupling. This can present bearing problems in the motor and pump, balancing issues due to damaged impellers, and also shaft misalignment between the two.



Fans

Fans can also have bearing and balancing problems. A fan can be out of balance due to damage, dirt, or thrown weight. A bent shaft will also create a balance issue.

£450

9070 Vibration & Bearing Condition Analyser: analysis simply at the touch of a button!

TPI 9070 analyses & interprets readings:

- ISO machine alarms and Bearing Damage Units (BDU) reading indicate overall machine and bearing condition
- Clear picture of 1X, 2X & 3X machine problems detects imbalance, misalignment and looseness
- 800-line spectrum with zoom and cursor to identify complex issues



£600

9071 Intelligent Vibration & Bearing Condition Analyser with BNC cabled accelerometer with magnet for consistent readings

TPI 9071 analyses, interprets, and stores readings.

Everything the 9070 can do plus:

- BNC cabled accelerometer with magnet for hard to reach test points and repeatable results
- Collect and store readings; 10 memory blocks with 20 readings per block for a total storage of 200 readings.
- Stored data is easily recalled and displayed.



9070 & 9071 Intelligent Vibration & Bearing Condition Analysers

Attach industry standard magnet (optional A9073 on the 9070) with 1/4"x28 thread. Provides faster, more reliable and repeatable readings.

- **Built to last:** rugged, reliable, IP67 waterproof, long battery life. Not only does the rugged design and waterproof case keep the 9070 & 9071 working in demanding environments, but advanced technology ensures a long battery life - with 1,500 measurements
- **Helps prevent downtime and reduce maintenance costs**

9070, 9071: 3 Year Limited Warranty



Clear picture of:

- 1X, Unbalance
- 2X, Misalignment
- 3X, Looseness



9080 Intelligent Trending Vibration & Bearing Condition Analyser.....with various kit options available

Analyses, Interprets and TRENDS Machine Condition

- Identify the vibration problem: 2/10Hz to 1kHz for a clearer understanding of unbalance, misalignment or looseness
- Vibration values are displayed with color coded alarm levels for ISO values
- User settable Alarm Levels for easy identification of the bearing condition displayed as a BDU (Bearing Damage Unit) value
- 1kHz to 10kHz covers the Bearing Condition to identify bearing wear, damage, lubrication issues etc.
- Identify complex issues: 800-line spectrum with zoom and cursor.
- Load up routes for operatives to follow and trend lines show problems before they happen when using the accompanying VibTrend PC Software



VibTrend PC Software - Supplied as Standard with 9080 Kits



with NO ongoing subscription fees
See Page 6 for more details

Store, analyse and report on all your vibration parameters in one place

Create Routes for operatives to follow for easy vibration point & machine identification then send out e-mail notifications automatically once docked



9080-Standard Includes:

A9018 accelerometer, curly cable & magnet & A9081A USB docking cradle in the A9087 carrying case with VibTrend Standard PC software (up to ten assets with ten measurement points per asset) WITHOUT any ongoing subscription fees

£950

9080-Pro:

As 9080-Standard
PLUS

A9084 VibTrend Pro Unlimited PC software (up to 1,000 assets with ten measurement points per asset) WITHOUT any ongoing subscription fees

£1,300



9080-Plus:

As 9080-Pro

PLUS

A9086 protective boot, A9082 tachometer, & A9072 100mm extended stinger A9084 VibTrend Pro Unlimited PC software (up to 1,000 assets with ten measurement points per asset) WITHOUT any ongoing subscription fees

£1,450

9080-Standard, 9080-Pro, 9080-Plus: 3 Year Limited Warranty

+44 (0) 1293 530196 www.tpieurope.com 3

9080-Ex Intrinsically Safe Intelligent Trending Vibration & Bearing Condition Analyser.....

Analyses, Interprets and TRENDS Machine Condition

BENEFITS

- Find machine faults before they stop your machine
- Increase productivity and lower maintenance costs

FEATURES

- Collect data
- Trend data using VibTrend software
- Intrinsically Safe cable mounted accelerometer with magnet
- Built-in Bluetooth communication capability
- USB docking station to download to a PC
- ISO built-in Alarms
- Easily identify bearing problems with BDU Reading
- Easily identify problems with built-in band filters:
 - 1X (unbalance)
 - 2X (misalignment)
 - 3X (looseness)
- 800 line FFT (spectrum)
- Ruggedized IP67 case
- 1-year Limited Warranty

PUT THE TPI

9080-Ex TO WORK:

Commercial & Industrial HVAC
Food Processing
Manufacturing
Mining
Packaging
Petrochemical
Pulp and Paper
Power Plants
Utilities
Automotive

£3,200

**VibTrend
PC Software
Included as
Standard**

Intrinsically Safe
IEC Ex/ATEX
Ex ib IIC T4 Gb
(-20°C ≤ Ta ≤ +40°C)

**Identify the vibration
problem: unbalance,
misalignment or
looseness; in addition to
the bearing condition**

Intrinsically Safe

Certificate Numbers: IECEx BAS 16. 0131X Baseefa 16ATEX0182X



9084 Intelligent Trending Analyser.....

Analyses, Interprets and TRENDS Machine Condition.....including Bearing Condition with **Wireless Charging**

BENEFITS

- Find machine faults before they stop your machine
- Increase productivity and lower maintenance costs

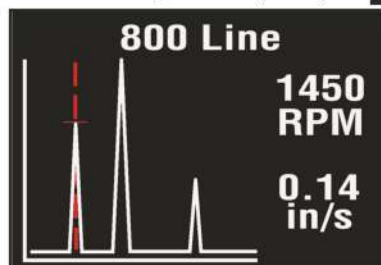
FEATURES

- Collect vibration data
- Trend data using VibTrend PC software
- Standard Cable mounted accelerometer with magnet
- USB docking station to download to a PC
- ISO built-in Alarms
- Easily identify bearing problems with BDU (Bearing Damage Unit) Reading
- Easily identify problems with built-in band filters:
 - 1X (unbalance)
 - 2X (misalignment)
 - 3X (looseness)
- 800 line FFT (spectrum)
- Wireless charging
- Ruggedized IP67 case
- 3-year Limited Warranty

VibTrend software gives you greater ease of use and flexibility.

- Store analyse and report on all your vibration parameters in one place.
- See Page 6 for further details

Overall machine and bearing conditions:
vibration values are displayed with colour coded alarm levels for ISO values and Bearing Damage Units (BDU).



Identify complex issues:
800-line spectrum with zoom and cursor.

Vibration & Bearing Condition Analyser

£1,495



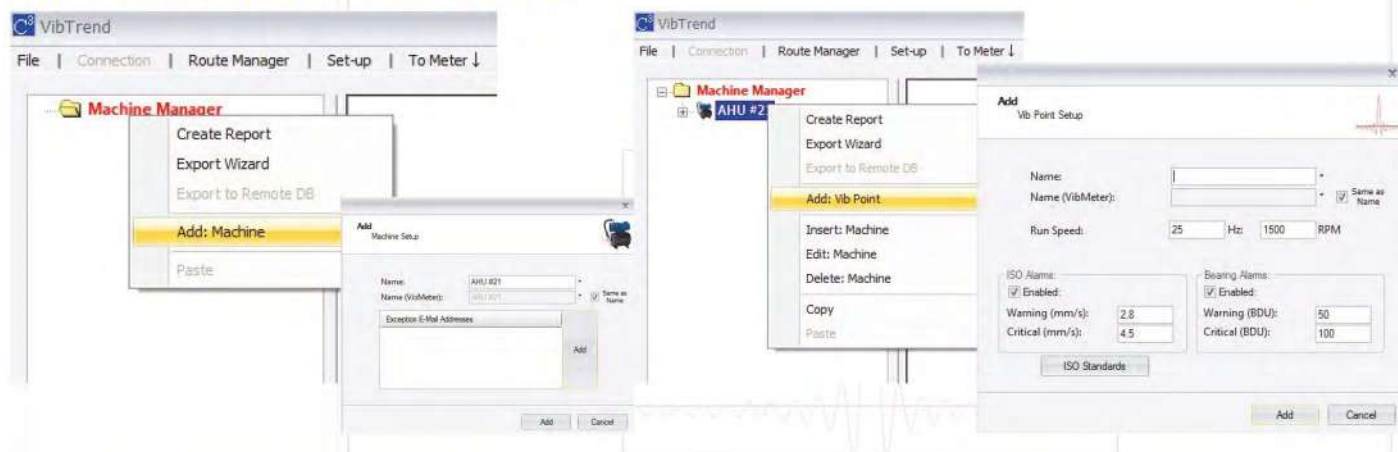
Supplied in Soft Carry Case with space for 9084, charger, cord, Accelerometer Cable & Accelerometer, Docking Cradle & USB Cable



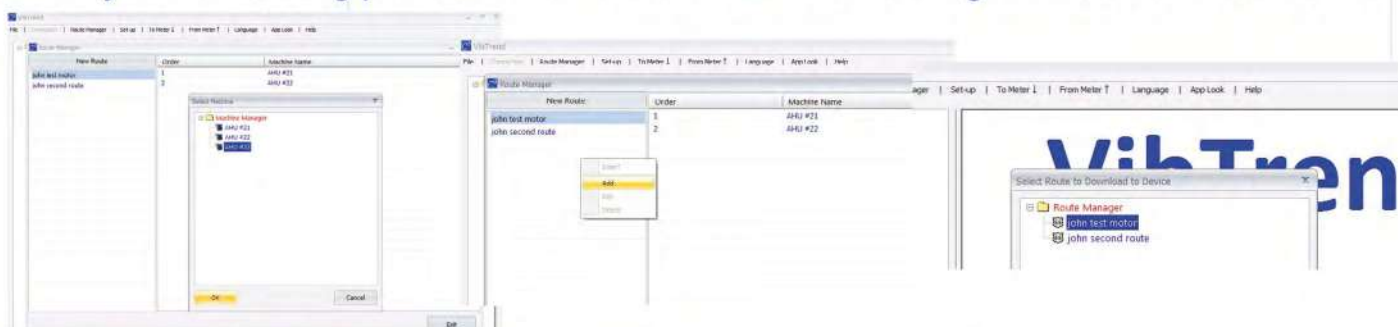
VibTrend Software included with 9080 Kits, 9084 and 9080-Ex.

Powerful but incredibly easy-to-use for asset management and fault diagnosis.

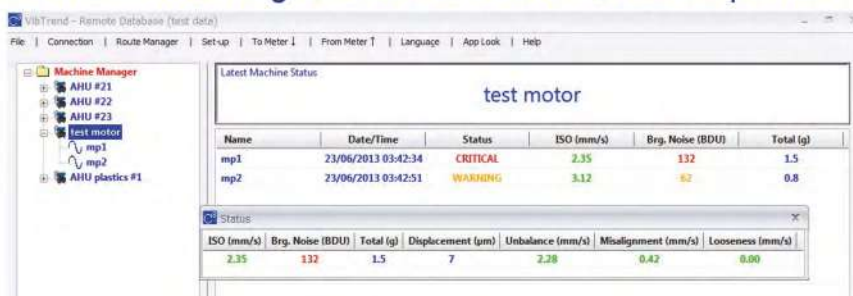
Add Machines & Vibration Points and using choice of pre-defined ISO and/or user-defined Alarm Levels for e-mail notifications



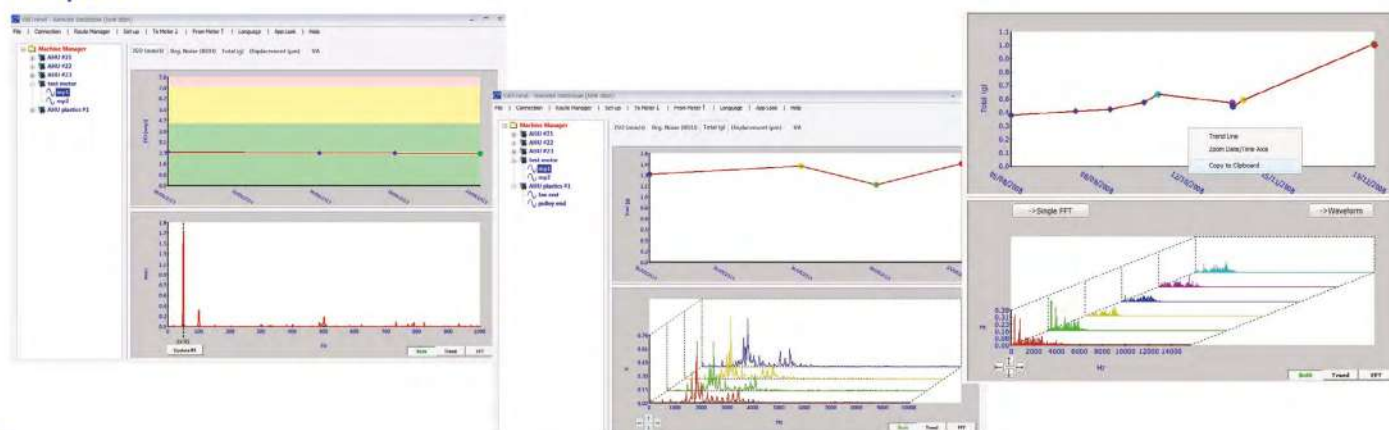
Create routes for operatives to follow and send these "To" and "From" the Meter to easily identify the measuring point and record the Vibration & Bearing Condition of the Machine



View Colour-Coded Status Warnings of Machines on measured points



Perform further diagnosis of Machine Measuring points using Trend Plots & Waterfall Graphs



9085 Intelligent Trending Analyser.....

Analyses, Interprets and TRENDS Machine Condition.....including Bearing Condition & Temperature with **Wireless Charging**

BENEFITS

- Find machine faults before they stop your machine
- Increase productivity and lower maintenance costs
- Measure temperature to determine if a bearing requires lubrication, preventing wear and failure.
- Use temperature measurement to confirm a high BDU reading (bearing noise) is caused by a worn bearing and not noise from pump cavitation, gearbox noise, or a nearby noisy bearing.
- Temperature measurement aids in diagnosing a tight or loose housing or shaft fit on a bearing.
- Measuring temperature assists with potential electrical issues on motors such as winding insulation deterioration, single phasing, broken rotor bars etc.

FEATURES

- Collect vibration and temperature data
- Practically instantaneous readout of actual surface temperature
- Trend data using C-Trend II PC software
- Standard Cable mounted accelerometer with Built in magnet and temperature sensor
- USB docking station to download to a PC
- ISO built-in Alarms
- Easily identify bearing problems with BDU (Bearing Damage Unit) Reading
- Easily identify problems with built-in band filters:
 - 1X (unbalance)
 - 2X (misalignment)
 - 3X (looseness)
- 800 line FFT (spectrum)
- Wireless charging
- Ruggedized IP67 case
- 3-year Limited Warranty

C-Trend II powerful PC software gives you greater ease of use and flexibility.

- Store, analyse and report on all your vibration parameters in one place.
- See Page 8 for further details

Vibration, Bearing Condition & **TEMPERATURE** Analyser

£1,995



Supplied in Soft Carry Case with space for 9085, charger, cord, Accelerometer Cable & Accelerometer, Docking Cradle & USB Cable



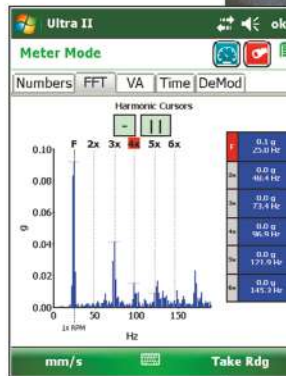
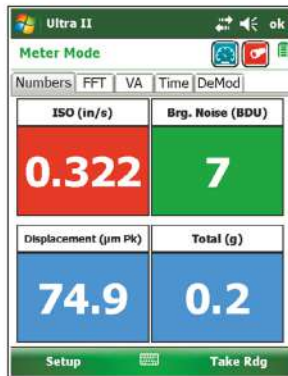
9041 Ultra II Does it All: Vibration, Balancing, Inspections.

Benefits

- Analyses, interprets and trends vibration data. Automatically detects out of balance, misalignment, looseness and bearing defects
- Predictive analysis capabilities that accurately calculate time frame to failure
- Condition based monitoring analyses bearing wear and gear degradation
- Built-in single plane balancing enables correction of the most common cause of vibration (Dual plane balancing with additional accelerometer)

Features

- Set up routes that include inspections
- User selectable defined envelope filters and demodulation functionality
- True simultaneous 3 channel capture
- High resolution (0.2 Hz) frequency spectra from 2 Hz to 10 kHz
- Rugged fully waterproof construction meets IP68 and MIL-STD-810F requirements



£5,950

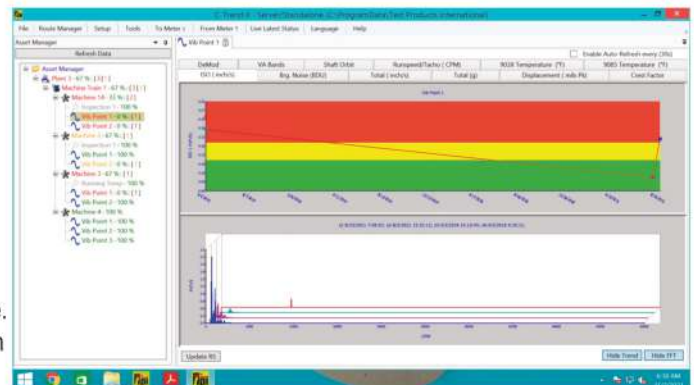
9041 Ultra II Includes:

- Software, tacho, accelerometer (one) and cables
- Carrying case with shoulder strap
- The 9041 has a 1 year limited warranty

Includes C-Trend II, a powerful and easy to use asset management and fault diagnosis software.

C-Trend II Software gives you greater ease of use and flexibility.

- Store, analyse and report on all your vibration and process parameters (e.g. oil pressures, temperature, run hours, etc.) in one place.
- All information is just a click away. Color coded alarms highlight problems. Trend lines show problems before they happen.
- Data can be accessed anywhere on any machine, with networking software. Plant history is everything and C-Trend II turns it into useful information with the click of a mouse!



Optional, Additional or Replacement Accelerometers & Cables for 9071, 9080 & 9041

A9013 BNC to 2 Pin Cable
£95



A9014 2 Pin Accelerometer
£120



A9017 BNC to 2 Pin Cable & Accelerometer
£215



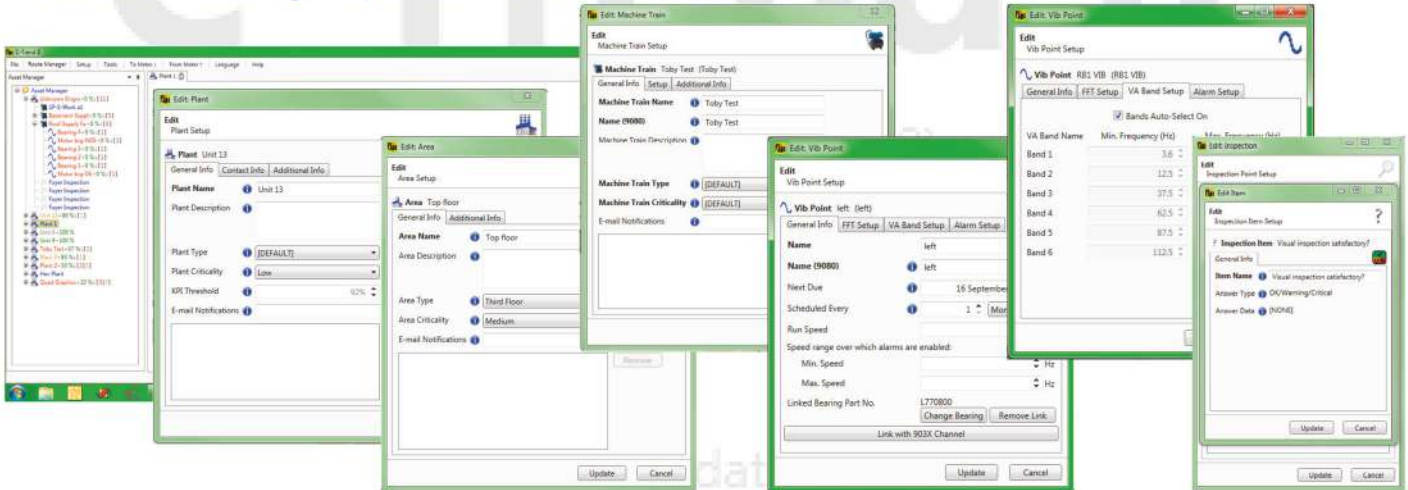
A9018 BNC to 2 Pin Cable & Accelerometer inc. Magnet
£310



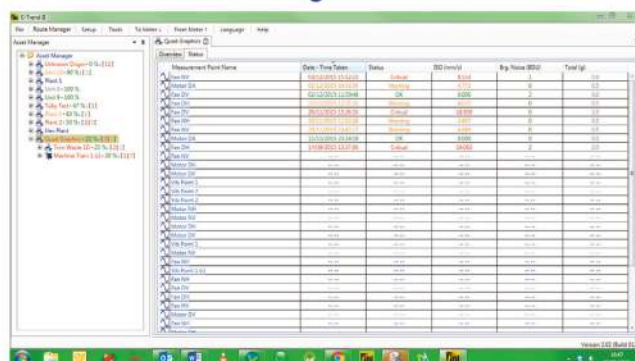
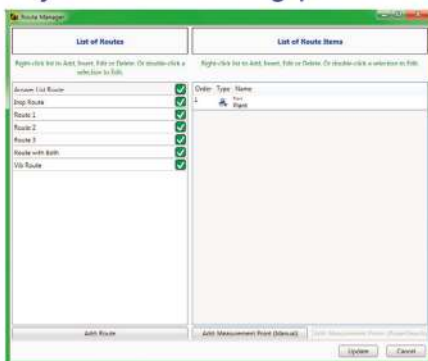
C-Trend II Software included with 9085 and 9041

Powerful but incredibly easy-to-use for enhanced asset management and high level fault diagnosis including DEMOD, Shaft Orbit & Inspections.

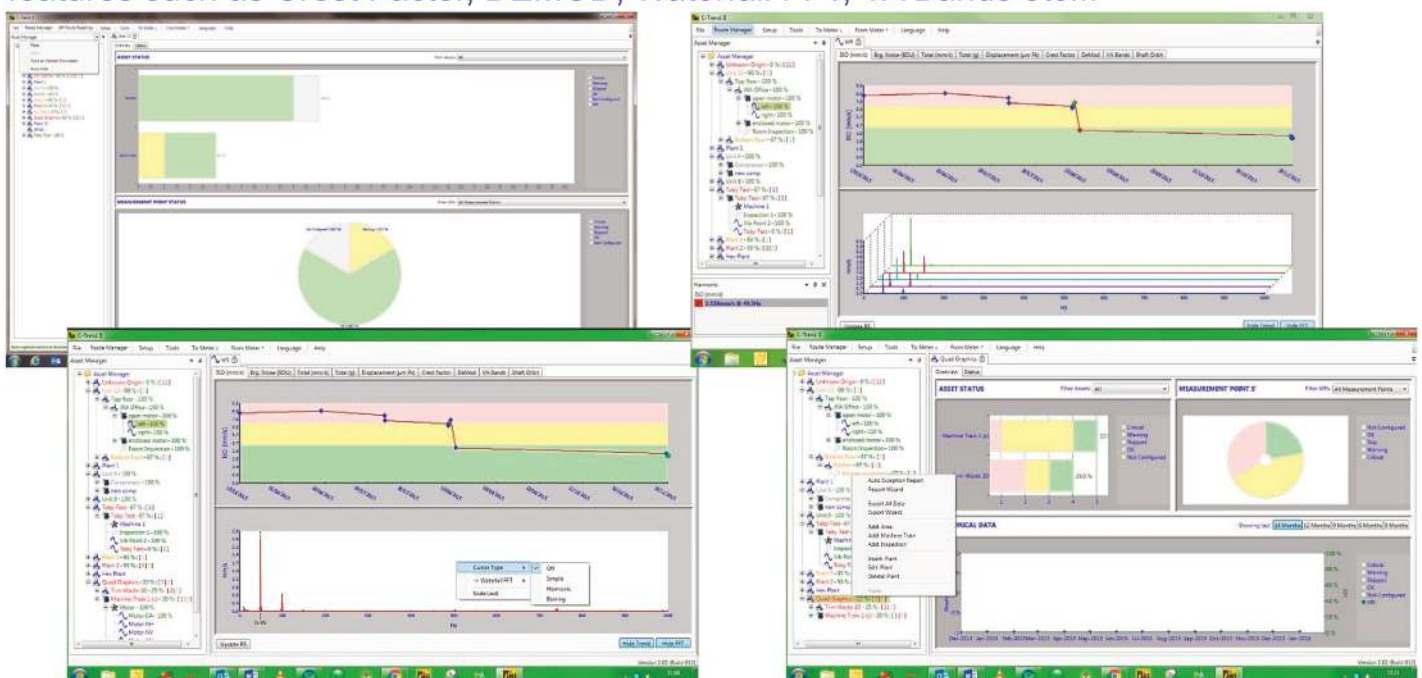
Create Plants, Areas, Machine Trains & Vibration Points and using choice of pre-defined ISO and/or user-defined Alarm Levels, Vibration Point Fault Frequencies from Bearing Database including Inspection Alerts for e-mail notifications



Create routes for operatives to follow and send these "To" and "From" the Meter to easily identify the measuring point and view the Vibration & Bearing Condition of the Machine



Perform further diagnosis of Machine Measuring points using a wide variety of additional features such as Crest Factor, DEMOD, Waterfall FFT, VA Bands etc...



9034 or 9038 Smart Vibration 4 and 8 Channels



£995 4 Channel

£1,295 8 Channel

Online/Fixed Vibration Monitoring

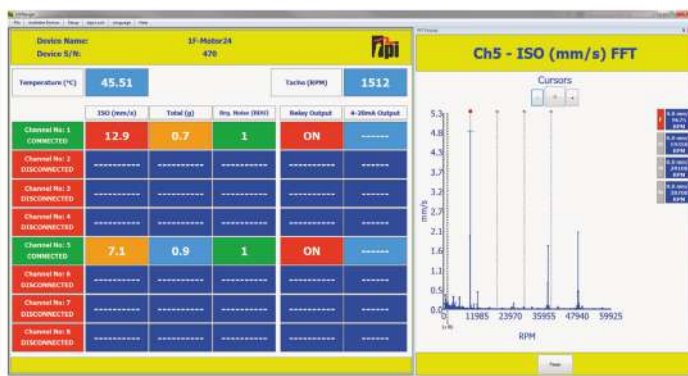
Features:

- 4 accelerometer channel & 8 accelerometer channel versions
- 24VDC (relay drive) switched output for each channel (warning/critical, g or velocity)
- 4 to 20mA output for each channel (g or velocity)
- Temperature input
- Tacho Input
- USB or Ethernet connection to Smart Vibration Monitor PC software and optional Vibration Analysis software

Advantages:

- Extremely cost effective – lowest cost/channel industrial vibration monitor/analyser
- Very easy to set up using included Smart Vibration Monitor PC software (C-Trend II Software available as optional purchase)
- 24/7 monitoring of critical plant operations

TPI Intelligent Vibration Monitor modules are perfect for extremely cost-effective monitoring of critical plants operations and when used in conjunction with the TPI 9070, 9080 and 9041, vibration analysers provide the complete CBM solution.



TPI 9034, 9038 Benefits:

Multi-Channel low-cost unit monitors plant with local alarms and connects to optional C-Trend II high functionality PC analysis software. The 9034 and 9038 Smart Vibration Monitors are the new generation of low price-high performance installed vibration analysers from TPI. With up to 8 accelerometer inputs, 8 digital outputs, 8 analogue outputs, temperature and tacho inputs as well as USB and Ethernet connectivity the 9034 and 9038 offer unrivalled price per channel performance. The analysers can be used in several different ways:

- **Standalone Operation** – Connect up to 8 accelerometers and up to 8 relays and instantaneously monitor and alarm on-key vibration points. Using the included Smart Vibration Monitor PC software the alarms can each independently be set to trigger on/either a velocity level or a g level. If a tacho is connected, a speed range can be set so as not to activate during machine start-up or shut-down.
- **Legacy Systems Operation** – for each connected accelerometer, the Smart Vibration Monitor units can also output levels of vibration (g or velocity) as 4 to 20mA signals for connection to existing monitoring systems such as PLCs, etc.
- **PC Operation** – If a laptop/PC is connected via a USB or Ethernet, up to 64 modules can be monitored and the vibration levels displayed on screen. With the PC connected more detailed vibration analysis can be carried out with optional C-Trend II software.
- **C-Trend II** – By purchasing optional C-Trend II software it's possible to view and analyse the long term trend of all readings as well as being able to see FFT's of all logged data.



Selection Guide: 4 Channel or 8 Channel Fixed Vibration Monitoring

	9034 Smart Vibration 4 channel		9038 Smart Vibration 8 channel
Measurement			
IEPE Accelerometer Input Channels	4		8
Accelerometer Sampling Frequency		25.6kHz	
4-20mA Output Channels	4		8
24VDC Digital Outputs	4		8
24VDC Dig. Output Current Max		100mA	
Digital Output Alarm		Acceleration or Velocity (Channel Selectable)	
Tachometer Input		1 (0V to any voltage up to +24VDC)	
Frequency Dependent Alarms		Yes (using Tachometer)	
Temperature Input		1 (Typically 10mV/°C)	
PC Connection		USB	
Internet Connection		Ethernet	
PC Software			
Vibration Alarms	4	Vibration	8
Temperature Alarm	1	Temperature	1
Alarm Choice		Acceleration AND/OR Velocity (channel selectable)	
FFT		Up to 12,800 lines	
Time Waveform		Yes, with optional C-Trend II Software	
Electrical			
Supply Voltage		USB or 24VDC	
Supply Current		500mA	
Mechanical			
Environmental		IP50	
Operating Temperature °C		0-55°C (32-151°F)	
Storage Temperature °C		0-55°C (32-151°F)	
Mounting		DIN Rail	
Part Number	9034		9038

A9031 Grub screw

¼"-28 UNF 1/2" Male to
¼"-28 UNF 1/2" Male
£4



A9032 Grub screw

¼"-28 UNF Male to M6 Male
£4



A9033 Glue face stud

¼"-28 UNF Male
£7



**A9034 Spot Facing
Installation Kit**
¼"-28 UNF thread
£530



**A9035 Spot Facing
Installation Kit**
M6 thread
£530

**A9014 Accelerometer
with 2-pin connector**
£120



Straight 2 Pin MS Connector and Flying Leads

A9019: 5m (16ft) with straight 2 Pin MS connector
and flying leads £52

A9028: 10m (32ft) with straight 2 Pin MS connector
and flying leads £67

A9029: 15m (49ft) with straight 2 Pin MS connector
and flying leads £110

A9036: 5m (16ft) with angled 2 Pin MS connector
and flying leads £52

A9037: 10m (32ft) with angled 2 Pin MS connector
and flying leads £67

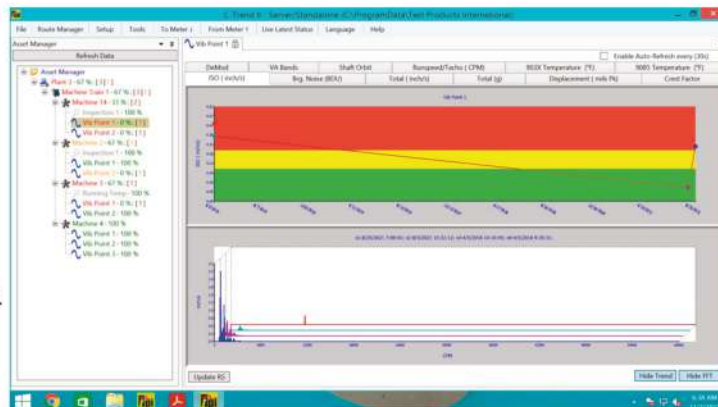
A9038: 15m (49ft) with angled 2 Pin MS connector
and flying leads £110



TPI is Your Vibration Monitoring Source. Accessories and More.

C-Trend II Software for greater ease of use and flexibility.

- C-Trend II comes standard with the 9085 & 9041 and is available optionally for the 9080, 9084 and 9034/9038 series.
- Store, analyse and report on all your vibration, lube and process parameters
- All information is just a click away.
- Data can be accessed anywhere on any machine, with networking software.
- Allows the user to create Plants, Areas, Locations, Sub Locations, Machine Trains, Machines, Machine Components, Vibration Measurement Points, and Inspection Measurement Points.
- Vibration readings are uploaded to PC and synced up against the correct asset.
- Trending graphs are created and various vibration information can be viewed.
- Alarm levels can be set and e-mails sent if a reading triggers an alarm after docking and syncing data back to the PC.



A9091 £1,500 with NO ongoing Subscription Fees

A9080 Bluetooth® Headset

Industry approved ear defenders with built-in-Bluetooth headphones allow you to listen to the bearing noise. Also use with your smart phone. Sold separately to work with 9080-Standard, Pro or Plus kits.

£450

For use with 9080 only



A9082 Strobe

Stroboscope/flashlight attachment used to determine the speed of rotating equipment. Included with 9080 Plus kit.

Also sold separately.

For use with 9080 only



£75

377BT Infrared Thermometer

- Bluetooth Communication
- Laser Sighting to confirm target.
- Adjustable emissivity for maximum accuracy on all surfaces.
- °F or °C Selectable
- 11.5:1 Distance to Spot Ratio
- 3 Year Limited Warranty
- Temperature Range: -50 to 1,000°C
- K-Type thermocouple input for optional K-Type probe measurement.
- 0.1 Degree Resolution provides increased accuracy of reading.

£220



505L Digital Handheld Tachometer

Combination photo and contact tachometer that also measures surface speeds of belts and wheels. Up to 25 feet in photo target mode.

- Measure motor input and output shaft speed
- Determine conveyor belt speed
- Confirm fan, motor, and gear RPM
- Measure RPM of flywheels and pumps
- Monitor pulley rotation RPM and turbine speeds

Features

- Target (photo mode) is 25 feet
- Multifunctions: Photo Tach & Contact Tach & Surface Speed
- Wide Measuring Range: 6 to 30,000 RPM
- Last Value, Max Value, Min Value: automatically saved and recalled
- 3 Year Limited Warranty

£195



Test Products International Europe Ltd.

Unit 6, Rutherford Way Ind. Est.

Rutherford Way, Crawley,

W.Sussex. RH10 9LN

www.tpieurope.com

For Customers & Product Inquiry

+44 (0) 1293 530196





Smarter Technology For A Stronger Future

The demand of lightweight robots that can operate with high dynamics and a high degree of precision is increasing. This cannot be achieved with one component alone as Ralf Moseberg, Head of Business Field Industrial Automation at Schaeffler explains, "Schaeffler has addressed this challenge head-on by developing new main bearings, motors, gears and a fully integrated sensor system for lightweight robots and cobots. Our solution package will enable cobots to operate around 50% faster and simultaneously transport 30% heavier loads, while our innovative concept in the form of sensor-based strain wave gears will provide the required sensitivity. This will enable us to explore other areas of application."

Cobots that combine high dynamics and sensitivity offer much greater flexibility in use, from collaborative applications to classic industrial robots, which not only result in a much faster return on investment and significantly increased productivity, but also in stimulated demand for cobots.

Precision strain wave gears

Schaeffler has expanded its range of precision strain wave gears to accommodate a broader range of applications in its robotics portfolio with two series for lightweight robots: RT1 for the high-torque range and RT2 for standard torque applications.

Thanks to the high torque density, RT1 strain

wave gears permit particularly compact articulated arms for higher-than-average loads. Their low weight and compact design make them an ideal choice for use in cobots. The backlash-free and wear-resistant tooth system of the strain wave gears guarantees excellent positional accuracy over the entire operating life.

In both series, the high tilting rigidity of Schaeffler's XZU double row angular contact needle roller bearings enable a cobot structure with considerably increased rigidity.

Torque sensor system

The precision strain wave gears now come with the added option of a fully integrated torque sensor system, which delivers high-precision torque signals without the need for additional installation space, or any resulting loss of rigidity in the overall mechanical system.

A durable sensor solution suitable for volume application has been unavailable in the market to date – a gap which Schaeffler has now

succeeded in closing with its sensor-based precision strain wave gears.

Unlike other solutions available on the market, the torque sensor structure in sensor-based strain wave gears is applied to the flexspline on a permanent basis using thin-layer technology. The sensor system not only supports safety functions but also provides precise, sensitive position and process control. The torque signals can also be used in the development of an active vibration compensation system, with the aim of achieving shorter transient response times for highly dynamic motion profiles.

Dynamic motors

The motors in Schaeffler's UPRS series offer a smaller design envelope, reduced weight, a higher torque density, and speeds that are, on average, 80% higher than conventional drives available on the market.

The newly developed motors are designed as axial flux machines, with coils designed in a

PCB configuration. The special circuit board design permits a high copper content by volume, good heat dissipation, and improved energy efficiency.

By optimising the motor design, Schaeffler engineers have succeeded in reducing the cogging torque to almost zero with noticeably positive effects in areas including teaching mode.

The systematic use of innovative materials in the active components of the motor reduces the weight of the motors and increases their energy efficiency.

As is standard with frameless motors, the bearing supports of the adjacent construction are also used, thus reducing both the design envelope and weight.

With these developments, Schaeffler's Ralph Moseberg concludes " Robots is a field with considerable growth potential and we have everything we need to fulfill the future system component requirements".



Whitepaper Shows How Eam Technologies Can Help Logistics Operators Tackle The Threat Of Downtime

Ultimo has published a new whitepaper to help logistics businesses optimise uptime and cut costs. According to a recent survey (EAM Trend Report 2021), 42% of asset managers in the logistics sector suffered unplanned downtime last year. Worryingly, only 4% knew how much downtime cost their organisation, highlighting the risks inefficient maintenance practices and lack of operational data pose to profitability. The whitepaper explores these challenges and explains how leveraging the latest Enterprise Asset Management (EAM) technologies can help give logistics managers better control over the cost and performance of fixed and mobile assets.

Logistics sector: Vulnerable to risks

"The logistics sector is very vulnerable to the risks associated with downtime, as any incident can quickly escalate down the supply chain," says Chris van den Belt, Team Leader Project Management, Ultimo. "Access to reliable asset data is vital for mitigating these risks and protecting profitability. However, 56% of logistics managers lack the data they need to benchmark performance, making identifying and correcting inefficient and costly maintenance practices difficult. The figure is high compared to many other sectors, highlighting the urgent need for the logistics industry to adopt a more data-driven approach to maintenance. This whitepaper highlights the issue and explains why data needs to play a key role in all futureproofing efforts."

What are the causes of downtime – and how to address them

The whitepaper explores typical causes of downtime in the sector, such as ageing assets and poor communication between teams. It then explains how operators can leverage cloud-based EAM technologies to address them, reducing risks and cutting costs. It also discusses why operational data is an invaluable tool in helping improve knowledge-sharing – a crucial step in enhancing the response to unprecedented events, mitigating the challenges associated with experienced workers retiring, and bridging the emerging skills gap in the industry.

<https://www.ultimo.com/efficiency-in-logistics>.



Cargotec Corporation

Hiab, their whole truck mounted forklift fleet equivalents, which reduces service time and spare parts costs. The uptime is further increased with Hiab's ProCare Total Repair & Maintenance contract. For a fixed monthly fee, Hiab will look after scheduled maintenance and emergency repairs to secure the equipment uptime, and original spare parts are included in the contract.

record order for electric MOFFETTs in Germany. The Behrens Gruppe, a dealer and logistics company for wood and building materials, has ordered all-electric MOFFETT E4 truck mounted forklifts together with ProCare service contracts for five years for a value of EUR 4.5 million.

In addition, Knettenbrech & Gurdulic, one of Germany's fastest growing waste and recycling companies, has ordered MULTILIFT demountables with installation for EUR 1.7 million. The equipment orders were booked in Cargotec's Q1 2022 order intake and will be delivered during 2022 and 2023.

They are also much more comfortable and safer for the operator as it is virtually silent with less vibrations than a diesel-powered truck," says Cord Schipfmann, Team Leader MOFFETT, Hiab Germany.

The Behrens Gruppe order includes both MOFFETT E4 25.3 NX and E4 25.4 NX models with a lifting capacity of 2,500 kilos. Launched in 2020, the E4 was the world's first 3-wheel drive electric truck mounted forklift that is now also available in a 4-wheel drive version. In 2021, the E4 won an IFOY AWARD, also known as the "Oscars of intralogistics", in the category Special Vehicle.

Knettenbrech & Gurdulic has ordered a mixture of MULTILIFT Ultima hooklifts and MULTILIFT Futura skiploaders, which are Hiab's most technologically advanced in each product category. Ultima hooklifts and Futura skiploaders allow operators to handle waste and recycling materials with ease and offer industry-leading safety and efficiency features for even the toughest jobs.

www.cargotec.com



Electric MOFFETTs are engineered with fewer moving parts than the diesel



Hase Safety Gloves GmbH

Still Takes Warehouse Automation To A New Level

Automated industrial trucks come into their own wherever recurring transport tasks with standardised transfer stations and homogeneous load carriers are required. A high degree of flexibility is ensured by scaling with additional trucks, different automation levels and adjustable routes. One excellent example of this is the expansion of Hase Safety Group's automated warehouse, which uses high-performance automated trucks from STILL. Route optimisations and automation of incoming goods checks are also used to help improve performance. With the market for work safety clothes rapidly expanding, there is also a need for more warehouse capacity. Hase Safety has made its warehouse fit for the future by expanding the capacity to 10,000 pallet locations and introducing automation technology from STILL.

Growth trajectory at Hase Safety

Over the course of its 80-year history, Hase Safety Group AG, based in the town of Jever in north-western Germany, has focused on the

manufacture of work safety clothes. To this day, the company still has its sights firmly set on growth. In line with this, the company recently decided to expand its premises. The new building will house logistics areas, an innovation centre for client training, product development and a showroom.

Theodor Wagner, President of Hase Safety Group AG explains: "This is the only way we could meet the growing demand for new products. Greater turnover of goods for our customers throughout Europe also requires more warehouse capacity, plus efficient and economical warehousing."

More automation means more productivity

For short journeys, the various items are packed in boxes and, following ABC analysis, stored on pallets according to type in the narrow aisle warehouse. All AGV's (Automated Guided Vehicles) navigate using rotating laser scanners, which constantly measure distances to installed reflectors, enabling them to move safely and autonomously. Three MX-X iGo systems Very Narrow Aisle Trucks and four EXV-SF iGo systems high lift pallet trucks from the latest generation were each fitted with

the iGo systems automation kit from STILL. Standardised components, controllers and interfaces turn the forklift trucks into high-performance AGVs.

In incoming goods, the boxes with new items are collected from shipping containers via telescopic conveyor belt. Logistics employees then put the boxes on pallets using vacuum lifting aids separated according to type and send these to the incoming goods positions. Manual scanning of the storage locations and the items triggers the IT system to perform storage tasks automatically. Project and IT Manager at Hase Safety, Maximilian Engels, explains further: "We have worked with STILL to automate many of the processes in incoming goods. As well as the new AGV, the newly programmed route optimisations also help to improve performance."

With automatic storage, EXV iGo systems high lift pallet trucks collect the pallets of separated materials in incoming goods and take them to the contour check. If they pass, they are transported by the EXV to the narrow aisle warehouse where they are then stored

in the assigned storage locations by MX-X iGo systems turret trucks. If goods are being retrieved, the process works in reverse with the MX-X transporting the relevant pallet to the transfer point. This, in turn, is then collected by the EXV and either transported to the delivery shelf of the manual order picking warehouse or directly to the HGV's shipping points. Once the storage/retrieval jobs are completed, the AGVs return automatically to their waiting positions for the next job.

"One consequence of the route optimisations is that fewer transport jobs are required, which means the AGVs don't need to move around as much. This has also significantly improved safety in the warehouse. Despite the coronavirus pandemic, and thanks to the close collaboration between our team and the project managers at STILL, we were able to successfully reorganise the software and hardware for our automated warehouse. As a result, we are now extremely well equipped to deal with all future challenges," summarises Engels.

Service directly on site

STILL has built a wide network of service technicians throughout Germany and abroad over the years. If a forklift truck develops a fault or maintenance is required, a service technician is always available to attend on site in no time. Sales adviser for intralogistics systems and project manager from STILL's Bremen subsidiary, Lars Lemke, expands on this point: "When we sell trucks, our customers always have easy access to service technicians who are specially trained in our automated products. Stefan Schuster is one example of this, having provided consistent support for Hase Safety's automated warehouse right from the start. In doing so, he has gained further knowledge of the various expansion stages."

Autonomous charging of truck batteries

The modern photovoltaics system, which covers an area of more than 10,000 m², supplies green energy for charging forklift truck batteries. "The AGVs drive autonomously to their charging stations to charge their batteries. There is no need to connect a cable and the trucks are charged through floor contact alone. This is another plus point, as the AGVs can now charge their own batteries overnight without any additional personnel required," says Lemke.

One-shift operation still possible

The shipping containers from Bremerhaven are not only delivered all day, but also at night.

Theodor Wagner explains: "By reorganising our automated warehouse, we can now store goods during the evening and overnight without personnel being present. This is a key requirement for the new processes. Despite the increasing demand on the market for work safety clothing, the new system allows us to continue with our one-shift operation."

Narrower aisles for MX-X iGo systems with telescopic forks provide greater storage density and more capacity

All MX-X's are fitted with telescopic forks in comparison to turret trucks with swivel traverse forks, meaning the aisles at Hase Safety can be significantly narrower. The storage density and capacity are both higher as a result.

Maximum flexibility in the scalable automated warehouse

Thanks to the scalability of the automated warehouse, additional AGVs can be introduced quickly and flexibly to deal with increased capacity requirements. The fact that the AGVs can be operated by hand for certain warehouse

processes underlines just how flexible Hase Safety's warehouse is.

Summary

The modern distribution centre with the iGo systems automated warehouse from STILL is ideally equipped for future requirements. Thanks to the system, the preferences and requirements of major customers can be met and the products delivered throughout Europe promptly and on schedule. "For over 30 years, we have been relying on STILL as a partner that can quickly turn our ideas into a reality. We started automating our logistics systems as early as 2010. In recent years, we have been constantly expanding our automated warehouse and this most recent project has brought it in line with the state of the art. With STILL's long history of automation experience and expertise, not only in planning and design, but also with the final implementation of the solution, they have always provided us with the best possible support," summarises a satisfied Theodor Wagner.



DHD Cooling offers a full-service

DHD Cooling offers a full-service capability to the manufacturing, HVAC, thermal power plant,

industrial and chemical industries, offering a bespoke service tailored to your exact cooling tower system requirements.

We are specialists in technologies such as hybrid water conservation systems, dry and adiabatic cooling units, plate heat exchangers and cooling towers. Delivering turnkey engineering design, installation,

refurbishment, or maintenance upgrades – DHD will project manage and deliver a solution which increases efficiency and performance, whilst meeting your maintenance budget and minimising downtime.

DHD will provide full reporting for your cooling equipment, including thermal performance, endoscopic and condition reports, providing you with full transparency about the effectiveness of your systems. We will also evaluate and inspect dry, wet and hybrid options.

Our engineers will offer advice and recommendations on relevant cooling

technology legislation such as HSG274 part 1, ACoP-L8 and Eurovent ensuring that industry standards are met and your business is fully compliant.

www.dhdcooling.co.uk



VIEW FULL MAGAZINE ONLINE

- + Extra Articles and features
- + Full Business Directory
- + Much More...

EMSOnline

www.engineeringmaintenance.info

All of our articles are available to read online today!
Scan the QR code to go directly to the site



Visit Us Online

www.engineeringmaintenance.info



ICS Cool Energy Introduces HVO Fossil-Free Diesel Fuel for More Sustainable Heating

The use of HVO fuel offers 90% reduction in greenhouse gas emissions and particulate matter pollution, with no loss in engine performance in comparison to fossil fuels

Southampton, March 15, 2022 – ICS Cool Energy, an international market leader specialising in complete temperature control solutions for manufacturing process and facilities applications, announced that from April 1st, 2022, it will introduce the Hydrotreated Vegetable Oil (HVO) fossil-free, diesel fuel as an option for its generator, boiler and heater hire product portfolio.

The biodegradable HVO is a more sustainable fuel alternative to traditional diesel and leads to even 90% reduction in greenhouse gas emissions as well as Nitrogen Oxide (NOx) and particulate matter pollution (PM) from the burner or engine, with unchanged performance. The HVO biodiesel can be used as a drop-in replacement or mixed with regular diesel, with no requirements for engine or burner modifications or more frequent maintenance intervals.

"Sustainability is at the core of ICS Cool Energy's business. With our eMission Critical initiative, we have set ambitious plans to reduce carbon emissions from our products and thus help our customers to reduce impact upon the



environment and achieve their sustainability targets," said Dave Palmer, general manager for UK and Ireland at ICS Cool Energy. "By approving and validating the use of HVO in our heating hire solutions we give our customers another option to increase the sustainability of their operations."

ICS Cool Energy offer industrial boiler hire all year round for hot water, heating and process temperature control applications with up to 2MW of capacity, delivering temperatures of 90°C for industries, buildings and applications of all sizes. The portable heater range contains fan heaters, IDF heaters, radiators and more with capacities up to 200kW, suitable to provide a wide

range of temperatures for events and longer-term installations.

Additionally ICS Cool Energy offers fuel management service, fuel sales and deliveries or an all-encompassing solution, including nationwide fuel monitoring and fuel management, as part of the hire agreement. ICS Cool Energy can track customer's fuel levels using ICSLink remote monitoring service, to provide real time information and fuel level alarms throughout the hire project without having to visit site.

For more information on ICS Cool Energy complete process temperature control solutions, please visit

<https://www.icscoolenergy.com/>.



Construction 4.0 Technologies Key To Improving Sustainability Of Sector

Technologies forming part of the 'fourth industrial revolution' can improve the economic and environmental sustainability of an industry that contributes around 11% of all global carbon emissions, a new study shows

Researchers including from the University of Exeter Business School examined how these Construction 4.0 technologies, including the Internet of Things (IoT), blockchain, drones, AI and self-healing materials, could impact on the sustainability of the construction industry.

By creating the first ever Construction 4.0 framework and testing it in a real-world setting, the researchers concluded that industry concerns such as high carbon emissions, low productivity and increased costs could be addressed with greater understanding and widespread adoption of these cutting-edge technologies.

The researchers expect their framework will help policy-makers develop interventions and support mechanisms to increase the deployment of Construction 4.0 technology while addressing any negative impacts.

It was tested through a case study of the construction industry in the United Arab Emirates, a country enjoying an unprecedented 9% growth in construction per annum, and where 75% of all solid waste comes from construction.

Informed by all available academic research on Construction 4.0 over the past 10 years, the authors' framework identified which technologies are in use, categorising them

under the headings of 'digitalisation', 'automation and advanced manufacturing', 'integration and collaboration', and 'intelligent environment'.

Through interviews with senior industry professionals, academics and government officials and a survey sent to 1,000 industry professionals they established that the use of Construction 4.0 technologies is likely to increase by around 20% in all categories in the next five years.

The study highlighted several technologies as likely leaders in the transformation of construction over the next five years.

The Internet of Things (IoT), used to keep track of materials and equipment, as well as in smart sensors that can continuously monitor dust, hazardous fumes, noise, vibrations and motion detection, is likely to become more widespread as construction moves towards digitalisation.

'Automation and advanced manufacturing' technologies such as robotic technology, drones and 3D printing will also become a mainstay of the industry, as well as 'integration and collaboration' technologies such as the 3D modelling system BIM (building information modelling) and 'intelligent environment' technologies such as machine learning, artificial intelligence and smart materials.

Construction 4.0 was found to have a mainly positive impact on the environment, with real-time data through IoT and analytics cited as key to gathering accurate information on material usage and waste.

The study also highlighted new 3D modelling software as a way of reducing paperwork, the role of VR and AR in reducing carbon emissions, and a reduction of waste through

a move towards prefabricating building components off site.

These environmental benefits were also found to translate into greater economic sustainability, with savings in energy, water, materials and human resources reducing the cost of construction projects and operational costs of buildings.

One of the main benefits of Industry 4.0 technology was found to be the potential reduction in costs, including manual labour, inspection and supervision and savings from the automation of routine administrative tasks.

However, respondents were wary about the amount of computational power required for technologies such as machine learning and AI algorithms, as well as the electronic waste generated at construction sites, and there was a more mixed reception for Construction 4.0 technology when talking about the social implications, with the likelihood of improvements to health and safety balanced by warnings of job losses.

Nazrul Islam, Associate Professor of Innovation/Entrepreneurship at the University of Exeter Business School, said: "This research demonstrates that Construction 4.0 has enormous potential to transform the sector and address some of its most pressing environmental and socioeconomic problems.

"Our comprehensive Construction 4.0 sustainability framework has huge potential to be adapted and applied to other countries, with several trends, conflicts, approaches, methods and gaps identified, all of which help to understand better and improve the adoption of Construction 4.0 technologies and guide future research."

New OpenSSL vulnerability:

Security Company Automatically Detects Affected Software Even In Iot / Iiit Devices

Widely popular Open SSL software for data encryption urgently needs to be updated

A new security vulnerability threatens all systems that use OpenSSL, one of the most widely used software for encryption of all kinds, for transport encryption based on TLS. When processing certain TLS certificates, targeted attacks can bring clients and servers to a complete standstill (DoS - Denial of Service). "Servers, clients and other devices must be checked immediately and patched if necessary. Since this software is very widespread, most IT systems - from servers to clients to the Internet of Things - are affected. If hackers target this vulnerability, the situation can become very critical for companies and institutions," warns Jan Wendenburg, CEO of IoT Inspector. The security company operates the leading European service for automated IoT firmware analyses. The recently disclosed vulnerability can easily be detected in IoT and IIoT devices and infrastructures by IoT

Inspector, and thus be remediated.

Threat level: High

The IoT Inspector team has uncovered numerous vulnerabilities in devices by well-known hardware manufacturers. "We have seen that after the publication of a technical advisory, hackers have specifically started to attack the addressed vulnerability. Therefore, administrators should immediately check if the issue is present in their networks," said Jan Wendenburg of IoT Inspector. The vulnerability (CVE-2022-0778) is rated with a threat level of "high." It was discovered by Tavis Ormandy, a British cybersecurity specialist who currently works at Google as part of the Project Zero team. The vulnerability affects OpenSSL versions 1.0.2, 1.1.1 and 3.0. Administrators using OpenSSL are urged to promptly install one of the secured editions 1.1.1n or 3.0.2.

Unpredictable situation

Fast action is particularly advised regarding international cyberattacks due to the ongoing war in Ukraine, according to the

team of specialists at IoT Inspector: "Critical infrastructures, as well as companies, are currently more at risk than ever. The alleged use of European technology in Russian war equipment shows how quickly companies are now caught in the crossfire and could potentially be drawn into a campaign by Anonymous hackers. The situation is unpredictable," Wendenburg explains. Just a few days ago, the German Federal Office for Information Security (BSI) issued its third warning of war-related attacks on IT infrastructures. In this context, every component of a network can be used as a gateway, unless the security vulnerabilities are identified through targeted analyses and subsequently remedied. IoT Inspector continues to offer a free security check for IoT/IIoT endpoints of all types in critical infrastructures following the BSI warnings. A firmware check takes only a few minutes and analyzes the relevant risks.

<https://www.iot-inspector.com>





Safer Ski-Lift Maintenance With Enerpac Portable Xc-Pump

Critical on-site maintenance is used, in combination with the XC-Pump inspection and battery pump. When inspecting the pylon roller removal of roller conveyors for ski-slope chairlifts high in the Italian Alps is

being made easier and safer using a battery powered, Enerpac XC-Pump and torque wrench kit. Ensuring the smooth running of the roller conveyors used to support steel wire cable is essential to the safe operation and movement of chairlifts between the departure and arrival stations via intermediate pylons.

Inspecting the 16 pylon roller conveyors ahead of the skiing season involves checking the integrity of the conveyors bolting through torque checking and visual inspection. A W2000X Enerpac Torque Wrench fitted with a hexagonal cassette in a range of sizes up to 46

mm is used, in combination with the XC-Pump battery pump. When inspecting the pylon roller conveyors, where the engineer is working at heights up to 25 m, the portability of the XC-Pump is vital.

"The XC-Pump is ideal for this kind of application in remote, and often difficult to access locations and where power may not be readily available," says Silvio Di Matteo, Enerpac

Account Manager Tools – North Italy. "The combination of Enerpac torque wrench and XC-Pump allows both inspection and removal of the roller conveyors to be accomplished with a single tool set. It is also much safer for the operator by avoiding the use of manual wrenches with extensions to generate high torques (over 1200 Nm), especially when working at height."

Typically, every five years the pylon roller conveyors assemblies are removed completely for detailed workshop inspection and maintenance, here too the Enerpac torque wrench and XC-Pump are used.

In the workshop, the roller conveyors are disassembled to check the components that cannot be seen during interim inspections, especially the pins. Both visual checks and NDT (non-destructive testing) are carried out on the pins. Then, the pin bushings and the roller bearings are changed. In addition, all welds are checked with magnetoscopic and ultrasound examinations.

For more information on Enerpac Torque Wrenches and the battery-powered, XC-Pump,

visit www.enerpac.com.

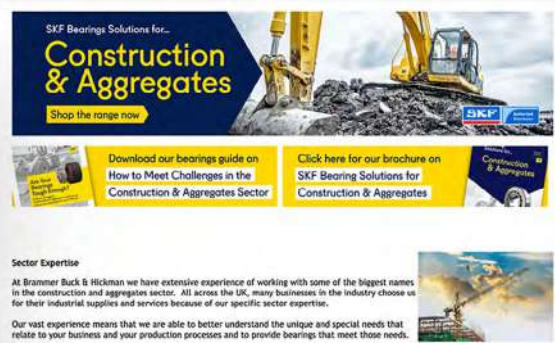
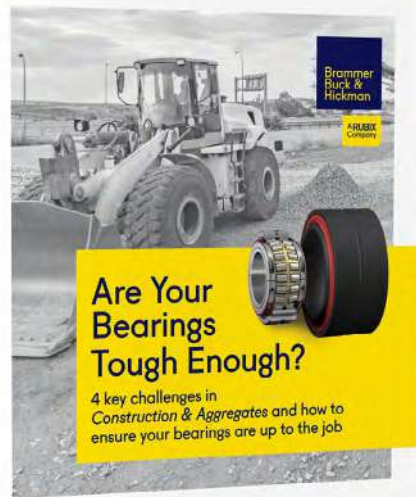


Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, has launched the Spartex range of everyday industrial essentials.

The Spartex competitive pricing. Spartex products from our buying power and leveraging brand has been are stocked in Brammer Buck & Hickman scale to ensure those products are introduced warehouses, enabling fast and efficient competitively priced." to make it delivery, even at short notice.

simpler for Spartex is exclusively available in the customers to Steve Seymour, Category Manager UK – UK from Brammer Buck & Hickman.

purchase and replenish operational and Exclusive Brands, comments on the new For more information on Spartex, please workplace essentials, such as chemicals, Spartex brand: "We know customers are go to <https://spartex.com/en/> or visit cleaning, storage, fasteners and work time poor, so by consolidating multiple your nearest Brammer Buck & Hickman clothes. Brammer Buck & Hickman sources of supply with a single trusted branch. To buy online, go to has researched and sourced a wide partner, Spartex provides everyday <https://uk.rubix.com/en/spartex> range of products, providing customers industrial essentials with minimum effort. Furthermore, customers benefit



Bearings in construction & aggregates: two new guides released by Brammer Buck & Hickman and SKF

Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, has released two new brochures, produced with bearing manufacturer SKF, aimed at the construction and aggregates industries. The new brochures address the specific challenges faced in these demanding sectors, along with SKF product solutions and advice on bearings best practice.

Across all industries, bearings are one of the most often replaced components, but in construction and aggregates all the more so due to the exceptionally harsh operating conditions. Here, bearings

face multiple challenges, from ingress of dirt and dust, through to very heavy loads and frequently working in extreme temperatures. Selecting the correct bearing is therefore essential to ensure reliable, long life.

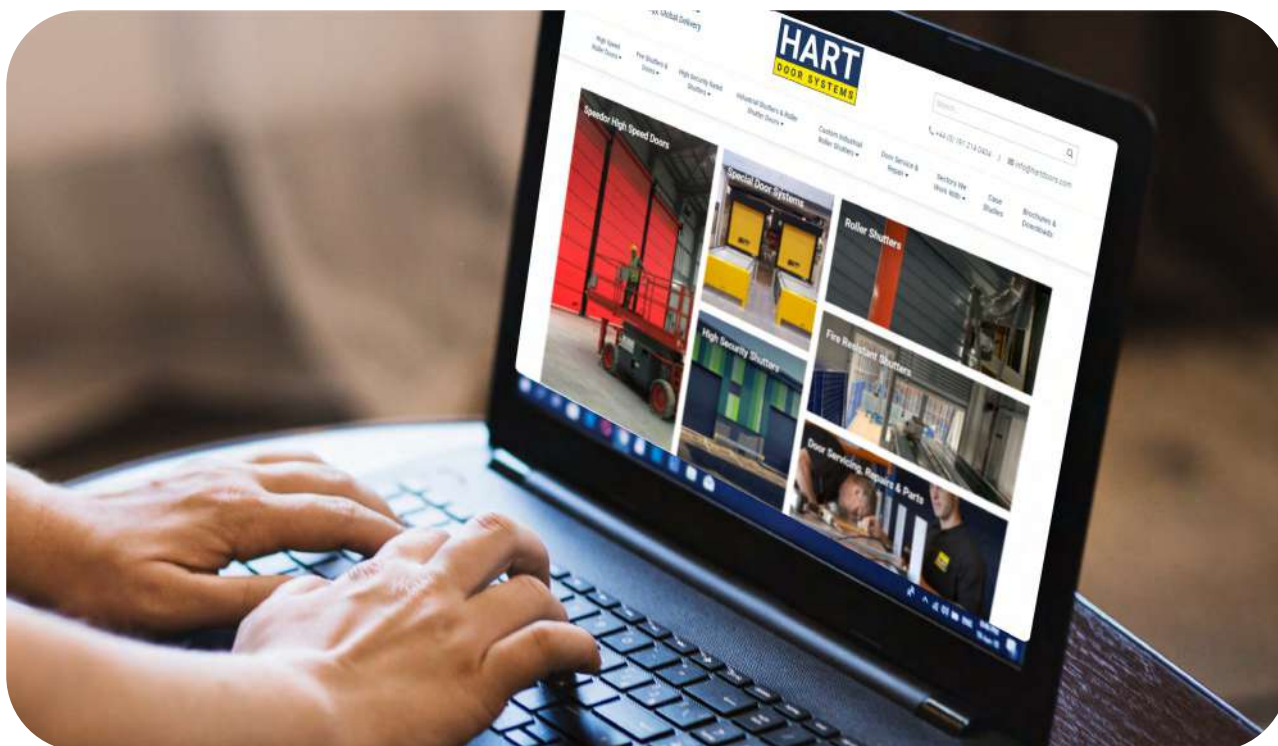
'SKF Bearing Solutions for Construction & Aggregates' is a 12 page brochure highlighting SKF products that have been designed to operate in construction and aggregates sites. These include SKF Explorer Spherical Roller Bearings, SKF Explorer Cylindrical and CARB Toroidal Roller Bearings and the SKF Three-Barrier Solution which protects the bearing from contaminants, leading to extended bearing service life on average three times longer than standard open bearings. The brochure looks at the key attributes of these – and many more –

bearing units and how they could benefit customers' processes.

The second brochure – 'Are Your Bearings Tough Enough?' – addresses the top four challenges faced by bearings in construction and aggregates applications. An informative guide, it looks at the challenges posed by the harsh operating conditions, the often-remote locations of these sites, health & safety, and sustainability. Just as importantly, it provides guidance on how to meet those challenges.

These two new brochures can be downloaded from Brammer Buck & Hickman's SKF bearings construction and aggregates industry page on its website -

uk.rubix.com/supplier/skf/constructionandaggregates.



Fresh identity for Hart

Hart Door Systems has redesigned its logo and launched a refreshed website to improve the visibility of the company online.

"Both the identity and the website are important elements of the company's marketing mix and refreshing the website and the overall identity go hand in hand. This is the

first major overhaul of these elements for over seven years," says Nick Hart, Hart's managing director

"Within the web we have focused on four core sections – high speed doors, fire and security shutters as well as general industrial products, underlining our engineered for endurance mantra as well as emphasizing our World class technology and global delivery.

"Further the website is very visitor friendly with

access to datasheets and other downloads so that we engage with our customers and potential customers."

Hart has also taken the opportunity to modernize its logo as part of the process. "It is clean and says everything about us – we are Hart after all and our business is designing and manufacturing door systems," adds Mr Hart.

www.hartdoors.com t: 0191 214 0404



EMSOnline

www.engineeringmaintenance.info

Visit Us Online

All of our articles are available to read online today!
Scan the QR code to go directly to the site

www.engineeringmaintenance.info





Addressing Assembly Challenges With Henkel's New Ultra-Performance Instant Adhesive: **LOCTITE 402**

Henkel's extensive
LOCTITE®
Instant
Component
Bonding range
has a new

best-in-class instant adhesive product for the assembly of small components in high-speed production applications as well as quick, on-the-go repairs. This new addition is LOCTITE 402, an instant, high strength adhesive whose features and benefits are designed to help address industry challenges

such as: productivity, reliability and design diversification.

The LOCTITE Instant Component Bonding range addresses many of the design and assembly challenges faced by manufacturers

in their quest to pioneer new products that are innovative, reliable and profitable. LOCTITE 402 builds on this foundation with even faster fixture speed, superior heat performance and a unique, patented formula with upgraded health and safety credentials (formulated without the addition of traditional stabilisers

such as HQ and MMBP). So, how do features of the LOCTITE 402 translate to benefits in modern manufacturing?

Fast fixturing & high strength

As LOCTITE 402 develops handling strength twice as fast on most substrates by comparison with selected other assembly solutions (3 – 10 seconds), it provides an elevated level of performance that meets the demands of modern manufacturing. This fast fixture speed, achieved at room temperature,



helps increase throughput and reduces work-in-progress (WIP) for both manual and automated assembly. Productivity can be increased further with a comprehensive range of LOCTITE manual, semi-automated to fully automated dispensing equipment that is easily integrated into most production lines.

LOCTITE 402 is a single-component instant adhesive that bonds most metals, plastics and elastomers as well as hard-to-bond materials with the use of a primer. It gives users a single solution for multiple materials and components which helps reduce assembly costs, process complexity and WIP. With ever-growing demand for more feature-rich yet smaller components in end-markets such as urban mobility, home automation and power tools, LOCTITE 402 helps manufacturers to have more options on aesthetics, performance and design.

Best-in-class high temperature performance
Even in extreme conditions, LOCTITE 402 delivers more reliable performance compared to many traditional instant adhesives. It demonstrates strength retention on most metals up to 135°C - both tested at temperature ("hot strength") and room temperature ("heat aging") - a big benefit, for example for end-

products whose power supply and connectivity generate a lot of heat. Improved impact resistance is another feature of this adhesive compared with traditional instant adhesives.

Ground-breaking formulation

LOCTITE 402 also sets an important new health and safety milestone for instant adhesives. Its patented formula contains alternative raw materials that support the enhancement of worker and workplace safety. Several instant adhesive ingredients have come under greater regulatory scrutiny in select regions of the world. Two of these are hydroquinone (HQ) and 2,2'-methylenebis (4-methyl-6-tert-butylphenol) - also known as MMBP - whose primary role is to ensure the adhesive remains liquid in the bottle for the duration of its shelf life.

In response to regulatory change requirements and industry demand for safer assembly solutions,

Henkel has exchanged certain raw materials in selected products in its LOCTITE range of Instant Adhesives. Although these raw materials were present in very small amounts in the original formulations, Henkel developed a novel stabiliser package which has allowed HQ and MMBP to be removed from the formulas for the most widely used Instant Adhesive products.

This health and safety breakthrough, in combination with the other technical advancements, make LOCTITE 402 a desirable alternative to other fastening methods in an even greater number of manufacturing environments. LOCTITE 402 incorporates best properties from the industry's top performing instant adhesives to give those involved in the design and manufacture of innovative products a significant competitive edge.

For more information on LOCTITE 402 and Instant Component Bonding go to [www.LOCTITE 402 Instant Adhesive - Henkel Adhesives \(henkel-adhesives.com\)](http://www.LOCTITE402InstantAdhesive-HenkelAdhesives.com)



Sandvik CRIBWISE launches white paper to help tackle cybersecurity in machine shops

Sandvik CRIBWISE, the tooling inventory management software business, has published an in-depth white paper addressing the cybersecurity concerns of machine shops that are preventing the adoption of the latest technology, including cloud-based software.

Elvira Cedergren, Head of cybersecurity at Sandvik's Design & Planning Automation division, which includes CRIBWISE, explains how machine shop vigilance needs to start with the basics after escalating cyberattacks over the last year.

The white paper addresses cybercrime, specifically for manufacturers, and the straightforward, common-sense steps that can be taken on-site to protect machine shops of all sizes.

Elvira says: "Supply chain attack which affected 40,000 businesses worldwide and infected over a million systems, caused a lot of disruption last year. It is a myth that criminals only target large businesses; cybercrime can affect all businesses, both large and small and it is necessary to have basic processes in place to mitigate risk."

Elvira's insights in the white paper, will reassure manufacturers reluctant to move to digitalisation as it outlines the questions that should be asked of vendors at the procurement

phase to mitigate risk.

She adds: "It is natural for businesses to be wary about investing in cloud-based software and services that run on the Internet. After all, if you limit the exposure of your business to the Internet, you also limit your exposure to the criminals that inhabit it. You would, however, also be seriously limiting the potential of your business to grow. Systems like CRIBWISE are invaluable tools for improving operational efficiency and reducing costs. There are advantages of adopting cloud-based systems –both from security and productivity perspectives."

She concludes: "Cybercrime should be taken seriously and there are simple processes that businesses can take, on-site, to protect its machine shop. A responsible software company, like CRIBWISE, takes a great deal of pride in the levels of security it provides its customers. This white paper provides clear and practical advice that can protect CNC machines and other systems, so that manufacturers can reap the benefits while still protecting its supply chain and business."

CRIBWISE helps manufacturers to take

control of their tooling inventory and related processes. It is modular, customisable and easy to integrate for all sizes of machine shops. It helps improve productivity and machine life by reducing administrative time, hours spent searching for tools and production and maintenance delays. It also cuts unnecessary expenditure due to over-purchasing and over-stocking.

Head of CRIBWISE, Joakim Johansson, says: "The pandemic has led to manufacturers really embracing cloud-based solutions over the last couple of years and are seeing the cost-saving benefits from reduced tooling and equipment inventory costs. Some companies have seen costs go down by as much as 20%.

He adds: "Manufacturers should be concerned about cybersecurity but by planning and understanding how to manage any potential risk, businesses should embrace new technology and cloud-based software. This will undoubtedly help businesses stay competitive in challenging times."

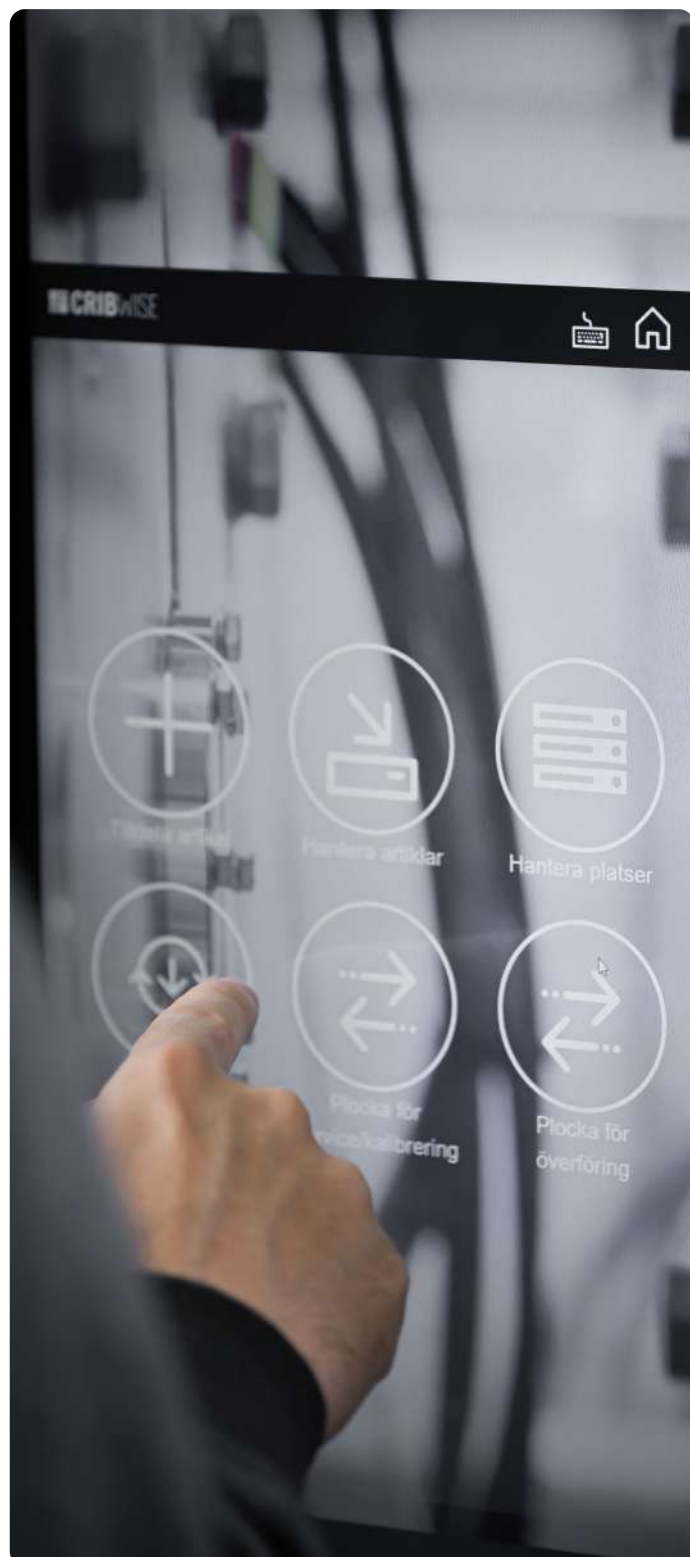
To find out more about how CRIBWISE protects your data and to download the white paper visit: www.cribwise.com/resources



Cybersecurity for machine shops

A manufacturer's guide to preventing supply chain attacks

Are you concerned about cybersecurity, hackers and data theft? Are these concerns preventing you from using the latest enterprise resource planning (ERP), inventory management software, and machine-monitoring systems? It is a common worry, but it need not be.



While your concerns should not be taken lightly, there are many simple, common-sense steps that you can take to protect the information and operational technology (IT and OT) that your machine shop relies upon. The security of the data held in cloud-based systems, meanwhile, can be managed expertly by their developers—allowing you to benefit from improvements in efficiency and productivity.

The costs of cybercrime

We should all take cybersecurity seriously. It is a myth that criminals only target large businesses; cybercrime can affect all businesses, both large and small. According to the Centre for Strategic and International Studies (CSIS), working in partnership with McAfee, as much as US\$945 billion, a little over 1% of global gross domestic product (GDP), may be lost to cybercrime each year.¹ These attacks might be designed to steal intellectual property, or to cause disruption to a company's activities. The recent surge in supply-chain attacks, especially during 2021, shows an alarming trend in ransomware attacks that allow hackers to infect a high number of victims via automated software updates.

Limiting growth

As such, it is natural for you to be wary about investing in software and services that run on the Internet, instead of locally on your computer (so called cloud-based systems). After all, if you limit the exposure of your business to the Internet, you also limit your exposure to the criminals that inhabit it. You would, however, also be seriously limiting the potential of your business to grow. Such systems are an invaluable tool for improving the efficiency of your operations.

Further, most machine shops have already started to use monitoring systems that connect machine tools and other manufacturing equipment to local, shop-level networks, so that managers can keep track of production processes. These too are vulnerable to attack.

The reality is, however, that while cybercrime can be a threat to your business, there are a number of straightforward, common-sense steps that you can take on-site to protect your machine shop.

Providers of cloud-based software systems, meanwhile, will have dedicated cybersecurity teams that work tirelessly to protect your data and your manufacturing operations. CRIBWISE's Head of Cybersecurity, Design & Planning Automation, Elvira Cedergren, says: "The advantages of adopting cloud-based systems over legacy systems are numerous and compelling—both from security and productivity perspectives."

No solution will be 100% effective, but by doing the following, you can lower the risk from all but the most skilled, determined and tenacious of criminals.

Strong passwords

When it comes to your on-site cybersecurity, start simple and remember the basics. Use strong passwords and DO NOT share passwords, a common practice in machine shops. Everyone should have their own username and password.

Simple and predictable passwords, and even those with numbers and symbols that appear to be complex, are easy for most cybercriminals to crack, if they so desire. Passwords with strings of sixteen or more characters can be generated randomly for added effectiveness.

The importance of education

Cyber criminals might target your computer systems, but your first line of defence should not be technology-based. It should be your people. You should train your staff to recognise the signs of a potential cyberattack. This alone will make your business more secure than most.

According to a recent survey, only 34% of those polled in the manufacturing sector thought core staff members took cybersecurity seriously.² The same survey found that just 31% of organisations said that their directors and top managers showed a very high commitment to cybersecurity.

People working in machine shops should know how quickly cyberattacks can shut down operations if they are not prevented. They should also know how to recognise common methods used by criminals, such as phishing emails (where fraudulent emails, text messages or telephone calls are used to trick victims into providing sensitive information), to harvest usernames and passwords to computers, and other sensitive data.

The good news is that there are myriad, freely available resources that can provide a good overview of cybersecurity for manufacturers. The NIST Cybersecurity Framework is a suitable place to start.



Elvira Cedergren

Head of Cybersecurity, Design & Planning Automation



Protect your CNC machines

Map the existing computers and network infrastructure in your shop, and then start thinking in terms of risk. What can happen? Am I a target? What security measures do we need? Remember to consider all aspects of your shop – both the operations technology (OT) and the information technology (IT) – and think holistically so that you have all of the angles covered.

It is obvious that all of the mobile devices, laptops, PCs and servers in your network should be updated with the latest security measures, but what about your CNC machines? A malware could manipulate the programming of a machine so that it creates defective parts and, if the problem is not noticed in time, those parts could be sold and create danger for the people or companies using them. A hacked CNC machine could also be used to steal proprietary information.

Machine shops can lock down their CNC tools, and other systems, by installing strong firewalls (barriers that sit between private computer networks and the Internet). It is also essential to use a strong authentication method

between users, assets and tools that grant or deny access to their networks based on a set of rules for privileges. Also, keep operating systems and software updated, as security flaws in older versions will be well-known and easily exploited.

Network segmentation

Network segmentation is the practice of breaking larger networks down into smaller pieces, so that any security breaches can be isolated.

Think of the interior of a submarine, which is broken down into a number of compartments. Should the hull be breached, the adjoining compartment can be sealed, limiting flooding and preventing the vessel from sinking until repairs can be undertaken.

Network segmentation operates on a similar principal; a threat can be contained in a segment of a given network, so that it cannot move to other parts of an environment. Small security incidents can be quarantined, meaning organisations are better protected from breaches.



Plan for the worst

Develop a contingency plan that can be executed in the event of a breach of your cybersecurity. A contingency plan will help guide you and your staff so that you make the right decisions during a cybersecurity crisis. Without this plan, you could face additional attacks, take longer to recover and lose more money.

Develop a chain of command so that your employees know how to report an incident. Create and share a quick-response guide so that everyone in your organisation knows what to do in the event of a cyberattack. Back-up your data. Think about how you would communicate with your customers in the event of a data breach. Thinking about these things now will enable you to respond more immediately should the worst happen.



When it comes to your on-site cybersecurity, start simple and remember the basics. Use strong passwords and DO NOT share passwords. 🔑

Responsible vendors

There is much you can do to ensure your on-site security and providers of cloud-based software should have security resources that most businesses cannot maintain. Indeed, the reputations of these companies are built on state-of-the-art security they should provide.

To ensure that you buy your software from a vendor that really cares about your security, ask as many questions as you can during the procurement phase:

- Do they operate specific systems that automatically detect suspicious activity, and do they have dedicated teams in place that specialise in cybersecurity to combat attacks?
- Will your data be distributed across multiple servers in several locations, making it harder for cybercriminals to track-down confidential information?
- Will this data be backed-up and the back-up secured, so that – if the worst does happen – it can be recovered immediately and completely?
- Does the provider monitor, characterise, report and automate the logging of system activity and events?
- Does it detect and analyse intrusion attempts and work with its customers to investigate them?
- Does it frequently review, evaluate and update its software to fix weaknesses that could be exploited by the latest threats?

A responsible software company will not only be able to answer these questions for you in detail, but it will also take a great deal of pride in the levels of security it provides for its customers.

The CRIBWISE difference

At CRIBWISE, we have a dedicated team of cybersecurity professionals that works around the clock to ensure that our customers' data, and their businesses, are secure.

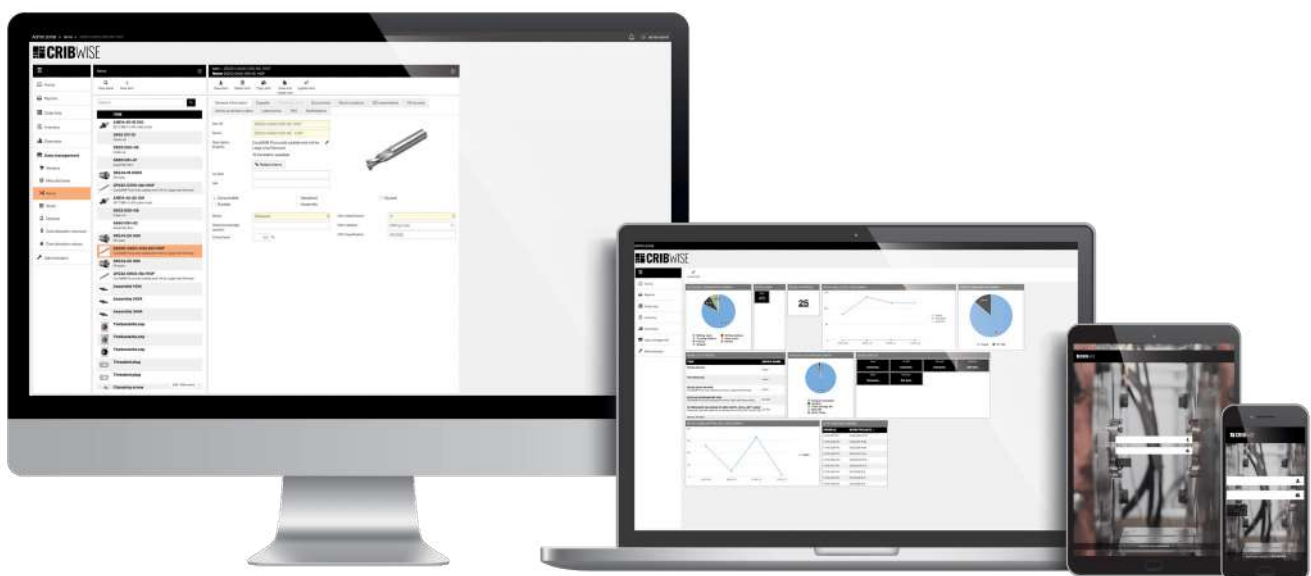
CRIBWISE is modular, customisable and easy to integrate, and grants machine shops complete control over their tooling inventory with minimal effort and expense.

The software eliminates administrative hassles, eradicates production delays and cuts excessive (often hidden) expenditure.

CRIBWISE customers have reduced their inventory costs by as much as 20% and have cut their tool usage costs by up to 10%. On-hand inventory levels can be reduced by around 30%. When used to manage inventories of personal protective equipment (PPE), consumption of these items can be slashed by almost 40%.

To find out more about how CRIBWISE protects your data, and help you get control of your tooling inventory, please email us: help@cribwise.com

Machine shops can lock down their CNC tools, and other systems, by installing strong firewalls (barriers that sit between private computer networks and the Internet).



Sources:

- 1 <https://www.mcafee.com/enterprise/en-us/assets/reports/rp-hidden-costs-of-cybercrime.pdf>
- 2 <https://www.iotforall.com/iiot-cybersecurity-employee-training>

Heller Introduce the
1911MK5-VR
Vacuum Convection Reflow
at SMT Connect, Nuremberg

HELLER
INDUSTRIES



Altus Supports Heller Industries with the Introduction Of a New Vacuum Reflow Oven

Altus, a leading supplier of capital equipment in the UK and Ireland, will be supporting their supplier, Heller Industries, the market leader in reflow oven technology as they introduce an innovative new Vacuum Reflow Oven at SMTconnect, Nuremberg from 10-12 May 2022.

As electronic products continue to become smaller, more advanced and complex in construction, it is important to have soldering processes which can be adapted to achieve solder joints with fewer voids to increase reliability. Heller Industries' new Nitrogen Vacuum Reflow Oven 1911MK5-VR is helping manufacturers to achieve the best results thanks to its ground-breaking design.

With 11 zones, a vacuum chamber, closed loop nitrogen atmosphere control and the company's award winning COOL-PIPE flux management system, which traps the flux so it can be easily removed and replaced while the oven is running, it has all the elements to

ensure fast throughput and process flexibility. Mike Todd, Operations Manager Assembly, Soldering & Cleaning Products said: "Heller Industries will be introducing visitors at SMTconnect to their newest reflow oven, which is a real game-changer. Heller vacuum reflow ovens provide best-in-class performance for removing voids in solder joints and interfaces. The 1911MK5-VR not only achieves ambitious performance metrics to assist manufacturers in streamlining SMT assembly, but it targets voiding ratios of less than 2% and cycle times of 40 seconds for single lane implementation and 20 seconds for dual-lane systems, impressive figures that will positively impact those that use it.

"Importantly it includes 11 zones, ten delivering convection heating, with one infrared (IR) zone strategically located inside the oven's vacuum chamber. This provides proven benefits in void-less solder paste reflow processing, resulting in long-term solder joint reliability.

"Heller Industries will be demonstrating the new system from their stand located in Hall

4, 4-259. We will be supporting the company by offering expert advice on Heller Industries range of products including the 1911MK5-VR from our UK facility" concluded Mike.

Heller Industries systems support customers from entry level NPI volumes, through to the fastest throughput needed. The new 1911MK5-VR Nitrogen Vacuum Reflow Oven is no exception. With a cycle time of just 40 seconds, it maintains solder paste reflow specification, including liquidous times of under 60 seconds. In addition, the oven is suitable for high temperature applications up to 450°C. It also benefits from IN-ZONE IR Heating to prevent flux residues precipitating within the vacuum chamber routine lubrication PM every 4 months.

To view the advanced 1911MK5-VR Nitrogen Vacuum Reflow Oven visit Heller Industries at SMTconnect from 10-12 May 2022, Hall 4, stand 4-259. Alternatively, contact Altus Group who can offer expert advice on the system, and others from the company's advanced range of technology.

www.altusgroup.co.uk



Dollinger Series Gp-146 Filters From Celeros Flow Technology Offer Highly Efficient Removal Of Trace Contaminants From Process Gas

Dollinger series GP-146 high efficiency filters from Celeros Flow Technology are designed to remove dirt, pipe scale and other contaminants from process air and other gases.

Acting as the last line of defence against particulates that could contaminate the end product or damage expensive equipment, the Dollinger GP-146 is equipped to deliver reliable filtration over extended periods while lowering total cost of ownership.

At the heart of the GP-146 unit is an efficient radial fin filter element that provides the

largest filtration area for a given element size. It offers operational integrity up to a differential pressure of 50 psid as standard, with special designs available for applications which demand higher differential capabilities.

Dollinger GP-146 filters come in an extensive range of synthetic and natural fiber filter media suitable for use with most process fluids. Interchangeability of the filter elements makes it simple to vary the degree of filtration within the unit. The filter elements can be cleaned and re-used many times with no loss of performance, which makes the Dollinger GP-146 an excellent choice in applications with high levels of contamination. It also reduces operating costs compared to purchase and replacement of entire filter units.

The filter housing is generally constructed of carbon steel or stainless steel. Special housings to accommodate low temperature applications can also be accommodated.

Dollinger GP-146 high efficiency particulate filters are designed and constructed in accordance with the ASME VIII, Division I Pressure Vessel construction code. Compliance with other international codes - including Korean, SELO, PED, TV, and GOST - is available on request.

To learn more about Dollinger GP-146 particulate filters, visit: <https://www.celerosft.com/en-us/brands/dollinger/products/gp-146-particulate-filters>

Asset Management/CMMS



"The complete CMMS"
Chris Drury, Ferrero

Helping businesses to increase productivity and reduce downtime



Contact us today for your free trial
023 8022 4111
shiresales@elecosoft.com

Elecosoft®



A SMARTER CHOICE TO MANAGE MAINTENANCE

Start reducing maintenance costs and saving time with an easy-to-use, affordable, and intelligent CMMS solution.

Book a demo!

- Web-based & Mobile (Android, iOS and Win10)
- Easy-to-use
- Quick installation & customisation
- Integrates with Corporate Systems
- Real-time reporting & dashboards

www.valuekeep.com
+44 (0) 20 8068 9242
info@valuekeep.com

Boilers & Burners

Interested in Advertising here?

Contact: Steve Pheasant
Media Manager
Tel: 07962 666987
Email: stevep@mslmedialtd.com



Modern Coil Type Steam Generators & Fire Tube Boilers

- 100Kg/h – 25,000Kg/h
- High efficiency - up to 96%
- Low overall emissions
- Improved safety
- Simplicity of control
- Quiet, clean & cool in operation

Tel: 020 8953 7111
info@babcock-wanson.co.uk
www.babcock-wanson.co.uk

Interested in Advertising here?

Contact: Steve Pheasant
Media Manager
Tel: 07962 666987
Email: stevep@mslmedialtd.com



EMSOnline

www.engineeringmaintenance.info

Visit Us Online

All of our articles are available to read online today!
Scan the QR code to go directly to the site



www.engineeringmaintenance.info

Boilers & Burners



Twin Industries International

Leading
BOILER BROKERS
for all
INDUSTRIAL BOILERS

Steam ♦ Hot Water ♦ Thermal Fluid
New ♦ Reconditioned ♦ Hire

Contact us or visit our website for

The largest selection of
Reconditioned Steam Boilers
available –

all with different suppliers,
who will quote you direct

SELLING A BOILER – contact us

01252 845521

sales@twin-industries.co.uk

www.boilerbrokers.com

Compressed Air

Leak Detection Spray



At the press of a button - **GOTEC LDS** is instantly ready to locate even the smallest low pressure leaks from compressed air, natural gas, LPG, refrigerant and every other gas - quickly, reliably, safely and conveniently.

- 400ml contents per can
- Non-flammable • Non-corrosive • Biodegradable
- Free from oils • solvents • halides • salts
- Spray can at any angle - 360° - upright to inverted
- NATO Stock No: 4910-99-930-4489
- VOSA & DIN EN 14291 compliant
- ISO 9001 Approved Manufacturer
- For sub-zero temperatures down to -45°C use GOTEC LT45



Gotec Trading Limited
Boulton Road, Pin Green
Stevenage, Herts SG1 4QL
Tel 01438 740400
Fax 01438 740005
enquiries@gotectrading.com
www.gotectrading.com



**INDUSTRIAL
BOILER
HIRE & SALES**

**STEAM • HOT WATER
• MOBILE • CONTAINER • STATIC**



HIRE • SALES • 24/7

**+44 (0)1992 451629
www.kingsboilerhire.com**

Condition Monitoring



www.rotechsystems.co.uk
Sales@rotechsystems.co.uk Tel: +44 (0)151 356 2322

Tank Storage



HORIZONTAL CYLINDRICAL TANKS

From 27,250 litres to 54,500 litres
(6,000 - 12,000 gallon)

Single and twin compartments, with cradles

BUNDLED TANKS

From 10,000 litre to 27,000 litre
(2,000 - 6,000 gallon)

with cabinet, gauge and alarm

All suitable for fuel, water & effluent
Call today for details

01638 712328 | tanks@thekinggroup.co.uk

Gas Detection

GfG Gas Detection UK Ltd
Manufacturer of
Portable & Fixed
Gas Detection Equipment

**smart
GasDetection
Technologies**

We've got you covered
WITH OVER 500 DIFFERENT GASES DETECTED

We've got you covered
GfG TotalCare®
TAILORED SERVICING
FOR TRUE COST OF OWNERSHIP WITH NO HIDDEN EXTRAS

We've got you covered
Do you need Professional Gas Detection advice?
Do you need more Gas Detection cover?
Do you need a review of your existing Gas Detection System?
FREE NO OBLIGATION ON-SITE GAP ANALYSIS

GfG GOOD FOR GAS

UNIT 8, BRIDGES BUSINESS CENTRE, WISSEMANSDEN, COVENTRY CV35 9EF
sales@gfgas.co.uk www.gfgas.co.uk Tel: 01376 561463

Temperature Sensors

LABFACILITY
TEMPERATURE & PROCESS TECHNOLOGY
www.labfacility.com
Phone: 01243 871280 Email: sales@labfacility.com

Labfacility are the UK's leading manufacturer of
Temperature Sensors and Thermocouple Connectors.

- *Thermocouple Connectors (IEC, ANSI, JIS)
- *Thermocouple Cable (IEC, ANSI, PRT)
- *Temperature Sensors (Thermocouple & PRT)
- *Sensor Installation Fittings
- *L60 Thermocouple & Fine Wire Welder

In addition to stocked
items, Labfacility also
offers bespoke
Temperature Sensors.

Thermal Fluid



Thermal Fluid Heating

Technology now for the future

- Up to 50% energy savings
- Compact size
- Easy & safe to use
- Works up to 350°C
- Low exhaust emissions
- High efficiency
- Requires no specialist knowledge
- Corrosion free operation
- No chemical treatment

Tel: 020 8953 7111
info@babcock-wanson.co.uk
www.babcock-wanson.co.uk



MODULAR SYSTEM

Each OnTrak is capable of 16 sensors. Easily scale OnTrak systems to thousands of sensors to one central dashboard

COMMUNICATION

(Ethernet, wifi or cellular)



SINGLE POINT LUBRICATOR

Dispense lubricant with precision only when needed from up to 16 single point lubrication devices



MOBILE VIEW

Viewable on any network connected device; pc, laptop, tablet, phone using a standard browser

ALARM NOTIFICATION

Built-in events system, which is configurable, and has the ability to display, email and text any alerts the system has

BEARING LUBRICATION REIMAGINED

Remote and Real Time Bearing Monitoring and Lubrication



The OnTrak SmartLube is a unique remote bearing monitoring and lubrication system. Designed to **monitor and lubricate bearings remotely**. With remote condition-based lubrication you can greatly reduce bearing failures.

System uses ultrasonic sensors: identify bearing issues beyond lubrication at the earliest possible point

Lubricate bearings remotely with a push of a button, using always the right grease and the right amount

All data accessible anytime, anywhere, via user-friendly dashboards

System includes single point lubricators: no more lubrication issues!

Easy to install, affordable and scalable

Integrates with existing databases and CMMS

CONTACT US FOR A DEMONSTRATION WITH REAL LIFE DATA!

UE SYSTEMS UK & IRELAND - CHRIS HALLUM
+44 (0) 7930 352 188 | chrish@uesystems.com

ue
SYSTEMS INC
The *ultrasound* approach