



ENGINEERING MAINTENANCE SOLUTIONS

The International Magazine For Maintenance & Engineering Professionals

Oct/Nov 2021

\$6.80

£4.16

€5.00



## Introducing PROTEAN Submersive Extreme

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Pumps & Valves

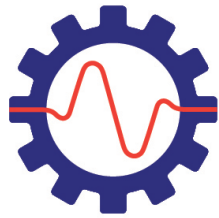
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News & Products

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# FARADAY PREDICTIVE

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**For more information see our website or contact us direct.**





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**Publisher**

Michael Dominguez



**Advertising**

Steve Pheasant

stevep@engineeringmaintenance.info

**Email**

Info@engineeringmaintenance.info

**Website**

www.engineeringmaintenance.info

**Phone**

Tel: +44(0)203 575 1170

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# DON'T LET PRODUCTION TIMES SINK!

Tired of production failures and delays? Our PROTEAN Submersive Extreme Grease has been designed to withstand even the most hostile of environments, from continuous wet environments to temperature extremes.

## Key Benefits

- Provides continuous high performance no matter the temperature, including sub zero temperatures down to -40°C
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**PREMIUM  
RANGE**



# Introducing PROTEAN Submersive Extreme

Our latest NSF H1 registered highly versatile grease which has been developed to resist extreme water wash off and heavy loads.



Our PROTEAN range is designed to provide solutions for the food and drink production industries however Submersive Extreme is adaptable to any environment and has been tested in some of the most hostile applications. We have spent years of detailed research and hands-on application experience to produce the best possible performance, reduce breakdown and maximise efficiency. We focused on developing a grease that has an exceptionally high dropping point, high load carrying capacity, reduced wear and industry leading resistance to water and corrosion.

We have worked closely with manufacturing leaders and proven through analysis in the most extreme environments that within weeks

Submersive Extreme can save companies thousands of pounds in downtime, but, more importantly, they are no longer letting their customers down with delays in production. This has not only resulted in huge cost savings but also significantly increased their growth opportunities emerging for new customers.

#### The key features of Submersive Extreme:

- Fully synthetic oil for increased heat stability, best suited for low to medium speed bearings operating under adverse conditions such as underwater
- Developed to provide high performance at elevated temperatures during periods of infrequent lubrication



- Developed to resist extreme water wash off and heavy loads
- Excellent mobility and torque, even at subzero temperatures down to -40°C
- Excellent resistance to water and corrosion
- Exceptionally high dropping point
- Extreme pressure performance with a 4 ball weld load of 700kg
- High load carrying performance
- Life performance up to four times that of a regular mineral oil based grease
- NSF H1 registered
- Smooth Beige Grease
- Superior resistance to heat and water
- Temperature range -40°C to +165°C

Application is easy and can be done by hand via standard grease gun, by keg pump for higher volume or by other methods suitable for an NLGI No. 2 grease. Submersive Extreme is available in 3 different sizes; 400g cartridge, 3kg and 18kg all delivered to you within 24hrs.

For more information visit:  
<https://tygrisindustrial.com>



**Overall Wind Turbine condition summary**

Fast: Electrical Rotor 2,372.2 Energy loss % 250

**Overall status**

Indicator	Status
RMS	Green
Power	Green
SOI	Green
L3 DI	Grey
Elec	Red

Energy usage: 170.82MW 208.49MWhr


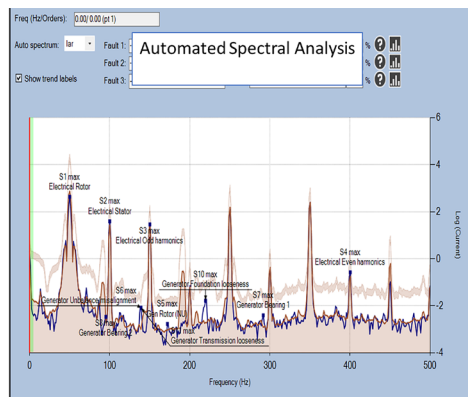
Energy voltage: 13.765kV 2.16MVAh

Unit energy cost: 0.0146MWh

Bar chart showing various loss components (Y-axis values are approximate):

Condition	Value (approx.)
Elec Rotor	2372.2
Elec Stator	100
Elec DC link	50
Elec Conv term	100
Gen L3 thermal	1000
Gen bearing	500
Gen PFCU loss	300
Gen Trans loss	1000
PF 2221 loss	1500
Voltage balance	1000
Voltage T10	1800
Voltage T10	2000


Sections for Condition chart: ☐ Show economic information ☐ Show raw ☐ Show simplified condition



HM Government

# The Ten Point Plan for a Green Industrial Revolution

Building back better, supporting green jobs, and accelerating  
our path to net zero



November 2020

The technology can be thought of as a form of Vibration Monitoring, that uses the mainly torsional signals that affect the motor current. But unlike conventional Vibration Monitoring, because Faraday Predictive systems measure voltage and



signals can make it difficult to get meaningful results.

The Faraday Predictive system has been tuned to work well in this challenging environment, giving good quality results – with outputs like those seen in the diagrams here, showing an overall condition summary, and a detailed spectral analysis. And a major advantage of this sort of system in a wind turbine is that the installation can be done on the outgoing cables, connecting at the base of the tower, with no need to ascend to the top of the tower to fit sensors, with all the Working at Height restrictions that would bring.

One single system provides information on the condition and efficiency across the entire machine – including turbine, gearbox, generator and power converter. Additional sensors can provide information on pitch and yaw systems.

Since being refined in these challenging

environments, this same technology is also available for monitoring your own factory machinery – pumps, fans, compressors etc. So in your own individual factory, you can see how much energy your machines are using, and more significantly, how much they are wasting, and what you can do to reduce the level of waste, while also enjoying the benefits of predictive maintenance. Now that sounds like a simple step we can all take to help the future of the planet.

current, they also measure energy consumption and automatically calculate how much each machine is costing you to run each year. And even more interestingly in our striving towards net Zero, they identify the amount of energy being wasted by machine faults, allowing you to cost-justify precision maintenance to eliminate the fault.

Faraday Predictive systems have proven to be effective in areas where other techniques such as conventional Vibration Monitoring have struggled. In Wind Turbines, the varying strength of the wind and the resulting variability of speed and vibration



For more information contact Faraday Predictive – [info@faradaypredictive.com](mailto:info@faradaypredictive.com), or 0333 772 0748

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Monitoring the world

## Introducing Machine Sentry® 2.5

### Enhanced Android™ application expands digital offer to customers

Machine Sentry® has enhanced its cloud-based condition monitoring offering with the launch of Machine Sentry® 2.5.

The latest developments deliver key enhancements to Android™ applications of the system, including:

- Integration with Bluetooth® low energy (LE) sensors from any manufacturer
- Support for new, advanced oil quality and vibration sensors
- A simplified measurement import application programme interface (API)

In addition to the option of employing MSF-1, a Machine Sentry® sensor, companies using the Machine Sentry® Android™ application can now add any brand of sensor to the system. By simply copying the sensor definition to the Android™ device's internal storage and opening it. Once loaded, the new sensor will be able to collect measurements in exactly the same way as MS-F1.

Machine Sentry® 2.5 also enables enhanced oil quality and vibration monitoring capability with the

addition of two new compatible sensors. The Tandelta oil quality sensor, connected via the Tandelta OQD Express display, allows the condition of oil to be monitored in situ without the need to extract a sample and send it to an oil lab. Wear or contamination is measured in real time to an accuracy of 0.001%.

The CTC WA102-1A transmitter, for AC312 and AC314 accelerators, has a higher maximum temperature range than MSF-1, with the potential to reach 125°C, and is capable of a higher sample rate, delivering a maximum F-Max value of just over 15kHz.

The simplified measurement API has been developed to make it easy to import devices, channels and measurements from other systems to Machine Sentry®. Data uploaded via the IPA is automatically added to the database.

Ian Newby, IS Development Manager of AVT



Reliability®, said: "Machine Sentry® is one of the most advanced cloud-based condition monitoring systems on the market but our ongoing aim is to make it simple and cost-efficient to use.

"The new capabilities offered by Machine Sentry® 2.5 not only expand the range of options to customers, but also make it easier to adopt them, without the need for detailed technical knowledge of the system.

"As always, customers have the additional option of direct support from our in-house team of reliability experts, from installation onwards, providing a 360° service to their condition-based maintenance programmes."

For more information visit:  
www.machinesentry.com



# Can predictive maintenance promote circularity?

The industrial sector is evolving away from a linear economy, in favor of circular economy systems that improve resource efficiency, drastically reduce carbon emissions and deliver substantial cost savings.

One way to lower material dependency and avoid carbon emissions in the industrial supply chain is to improve asset management through digitalized, predictive maintenance.

Here, Alessandro Bottarelli, Business Sustainability Leader for ABB Smart Power Division, explores how predictive maintenance can promote circular economy.

A circular economy is based on the principles of designing out waste and pollution, keeping products and materials in use for as long as possible and regenerating natural systems.

It is no secret that predictive maintenance saves money, so adopting circularity is simply the next step for organizations wanting to preserve the environment, reduce carbon expenditure and keep spending down.

## Carbon emissions in the supply chain

Every product and system used within an industrial environment has a 'product carbon footprint', which is accumulated at every stage, from cradle-to-grave.

It starts with the extraction of resources, such as metals, through to manufacturing of components and production of the final product, to transportation by land, air, or sea, plus emissions created during the use phase due to the product's intrinsic power losses and finishes with the associated carbon cost of end-of-life disposal.

It makes sense therefore, that by expanding the usable life of the system through quality predictive maintenance, the extraction of natural resources and carbon emissions from manufacturing and production processes, as well as the upstream and downstream transportation emissions, will be avoided.

## Condition monitoring to minimize maintenance

The concept of using predictive maintenance to extend asset life and reduce the impact of industry on the environment can be further improved with the introduction of condition monitoring.

For example, imagine a system has sensors installed to monitor the temperature around a critical internal component. Predictive maintenance processes will tell the asset operative that the temperature is too high, and the component is heading towards failure. This gives the operative time to source, purchase and install the replacement before failure occurs.

Condition monitoring takes this a step further, and allows the ongoing, real-time monitoring of system variables like temperature in finer detail. By using this method of system analytics, the operative will see the temperature slowly increasing in time and will be able to take corrective actions and avoid component failure. In doing so, they have pre-vented the need to buy a new component, reducing their resource dependency and eliminating the need for component production, transportation, and end-of-life disposal.

Maintaining a system in this more holistic way saves money on unnecessary repairs, reduces downtime and keeps maintenance labor costs minimal – cost savings that can all be attributed to using circular economy principles within an industrial environment.

## Replacing outdated components

When it comes to maintaining systems that contain multiple complex components, such as switchgear for example, it is now possible thanks to leading manufacturers like ABB, to replace only the components that have become outdated.

Taking the example of switchgear, asset operators are able to replace outdated circuit breakers using



specially designed retrofitting solutions, without scrapping the rest of their switchgear system.

In doing so, asset owners are able to keep much of their equipment in service, including the parts most damaging to natural resources, such as the metal cabinet, steel plates and busbars.

Retrofitting just the outdated component dramatically reduces the carbon emissions required to return the switchgear system to service, saving money and promoting circularity.

## Upgrading technologies without upgrading systems

Industry 4.0 and IoT connectivity are key drivers for system upgrade programs and businesses are investing heavily in automation – cutting short the service life of many systems that are no longer compatible with future business objectives.

Only retrofitting parts of a system that deliver connectivity and advanced functionality instead of decommissioning and replacing entire systems is a far more cost-effective solution. It enables much of the equipment to remain in service, only requiring the production, transportation and end-of-life disposal of critical upgraded components.

Retrofitting options to upgrade technology can not only help organizations to work towards a more circular economy but can also deliver significant cost savings compared to replacing entire systems.

For more information on how ABB is supporting its customers in achieving circularity through data-driven asset management, visit: [new.abb.com](https://new.abb.com)



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# SCHAEFFLER



# Where the smart money is

Condition-based monitoring is now considered to be the most effective way of ensuring equipment uptime within process-based environments, yet it is often only used on critical machinery due to high implementation costs.

Sally Sillis, technology centre manager at Schaeffler UK, explains why that no longer has to be the case and why the latest advancements in cloud-based solutions mean that not only is condition-based monitoring now affordable, it is also more effective.

Within manufacturing and other process-based environments, minimising downtime is as important as achieving high quality and maximising output. However, equipment failure is the single largest source of lost production time and, in an environment of ever-tighter margins, it can have serious consequences on the bottom line, as no value is being produced, but operational costs are accrued. To compound the issue, most companies significantly underestimate their levels of downtime.

## Money matters

According to The International Society of Automation, almost every plant loses at least five per cent of its production due to downtime, with some losing up to 20 per cent, and the cost to the global processing industry alone is estimated to be in the region of \$20bn.

Anything that can be done to mitigate such costs should be of interest to manufacturers, but many continue to implement a planned preventive maintenance (PPM) strategy, which involves replacing auxiliary equipment such as pumps, fans, compressors and generators on a time-based schedule, rather than doing so when they are actually worn or working inefficiently. Of course, PPM is better than having a reactive approach to equipment maintenance, which runs

an increased risk of losing productivity due to equipment malfunctions or breakdowns by simply waiting for something to break. However, it can also lead to needless expense, disruption and waste.

## A step in the right direction

Machines are much smarter than we think – it's just that in the past, they haven't been very good communicators. The industrial internet of things (IIoT), Industry 4.0 and advanced automation are quickly changing all that by adding intelligence to sensors.

Condition-based monitoring uses these sensors to measure the status of a piece of equipment while it is in operation. The data collected can be used to establish trends, predict failure, assess degradation and calculate remaining life. As a result, maintenance is only carried out when a consistent decrease in performance is identified, creating value through asset optimisation.

## Problem solver

This might sound too good to be true, but condition-based monitoring is already proven to save money and resources while ensuring maximum levels of uptime. Its only drawback has been a high cost of implementation due to the use of proprietary infrastructure or integration into an IT network infrastructure.

Now the cloud, the IIoT and smartphone technology have opened a new world of possibilities for developing next-generation condition-based monitoring solutions that are



easy to implement - and affordable. Schaeffler's OPTIME is leading the way in this area, making it possible to configure large scale condition monitoring that can detect potential issues before they start to cause serious problems. A SIM card enabled gateway means the system does not have to be integrated into an IT network infrastructure, and a subscription-based analytics service provides plant operators with real time information as to the 'health' of their machinery. Sensors can be installed within minutes and no configuration or maintenance of the entire system is necessary. Also no specific CM knowledge is required, since the analysis of data is automated. This information enables a scheduled maintenance programme to be created, factoring in personnel requirements and the procurement of replacement parts to be carried out without impeding production.

## Cost cutter

Using sensors to measure the status of equipment while in operation provides actionable and meaningful insight, and this is now recognised as fundamental to the reliable prevention of unplanned downtime in process-based environments. Manufacturers can now maximise operational effectiveness thanks to commercially viable innovations that form the last piece of the condition-based monitoring puzzle.

For more information visit:  
[www.schaeffler.com](http://www.schaeffler.com)

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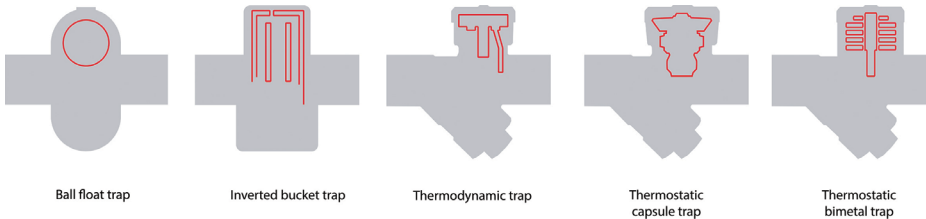


Ultrasonic Testing Devices for Predictive Maintenance



# Steam Trap Testing: Reduce Energy Costs and Increase Process Stability with Ultrasonic Testing Equipment

Regular inspections of production equipment are essential in preventive maintenance. Early detection of damage or signs of wear leads to increased plant availability and also saves enormous costs.



Is the steam trap working correctly or is it defective? Digital ultrasonic testing technology provides the answer. Energy losses are reduced and process stability is increased.

Steam traps that no longer close prevent optimum heat transfer and thus have a significant impact on the energy efficiency, cost-effectiveness and process stability of a steam system. Blocked steam traps and thus more condensate in the steam system, on the other hand, lead to accelerated corrosion, affect process and product quality and, in the worst case, can cause dangerous water hammer and unplanned downtime. Regular steam trap inspection is therefore essential.

## How much does a defective trap cost?

Experts estimate that over 20 percent of the steam produced is lost due to leaking steam traps. Through just one leaking steam trap (thermodynamic bimetallic, DN25, system pressure 11 bar), approx. 22 kg of steam per hour and thus approx. 190 t per year are lost (at 8,400 operating hours per year). With generation costs of 35 €/t steam, this loss adds up to approx. 6,600 € per year. Digital ultrasonic testing technology helps the maintenance engineer to detect and replace defective traps.

Before the inspection process, the type and operating principle of the steam traps should be known, as well as the system pressure and temperature. In open systems, even the first

impression can tell a lot about the condition of the traps. An indication of a defect could be, for example, the absence of condensate at the condensate outlet. The inspector obtains a more precise picture with the aid of combined temperature and ultrasonic measurement. Depending on the design, a functioning trap opens and closes continuously or discontinuously and generates characteristic ultrasonic signals during this process. To record the high-frequency signals, SONOTEC has developed the SONAPHONE digital ultrasonic testing device with the SteamExpert app, the BS20 broadband ultrasonic and temperature sensor, and the SONAPHONE DataSuite PC software.

The first step is to measure the temperature at the inlet and outlet of the steam trap. The integrated infrared temperature sensor in the BS20 detects the surface temperature without contact. The temperature can be used, for example, to determine whether the steam trap is at the expected operating temperature or whether it tends to be too cold (condensate build-up) or too hot (leaking) depending on the system pressure. With respect to the operating principle of the trap, the difference in temperature at the inlet and outlet is also evaluated.

## Broadband ultrasonic analysis

However, temperature measurement alone is not sufficient for reliable condition assessment. To determine a leaking steam trap, a broadband recording of the ultrasonic signal in the frequency

range from 20 to 100 kHz is needed. For this purpose, the BS20 structure-borne sound sensor is placed outside over the outlet opening of the steam trap. For the evaluation of the trap, it is important to know which type of trap is being tested. With the integrated trap database this is no longer a problem.

Steam traps have different noise characteristics depending on type, manufacturer and point of installation location. Whereas testers used to have only an analogue, acoustic signal to evaluate the traps, today it is easier to look at the touch screen of the digital tester. The broadband spectrogram from 20 to 100 kHz makes it much easier to analyse the condition.

The SteamExpert app on the SONAPHONE accompanies the inspector during the entire inspection process - from the creation of the inspection point to temperature and ultrasonic testing to documentation and evaluation. The evaluation can be done on site or afterwards on the PC with the SONAPHONE DataSuite software. For the PC software, the SteamExpert module has been available since 2021, which was developed explicitly for steam trap testing, loss estimation and reporting.

## Advantages of the complete solution at a glance

- Reduction of energy costs by more than 20 %
- Increase process stability
- Easy determination of all traps
- Fast and intuitive test procedure
- Efficient data collection
- Integrated trending and reporting
- Tools for steam loss determination

For more information:

<https://www.sonotec.eu/en/products/preventive-maintenance/applications/steam-trap-testing/>

# Four new apprentices join Smith Brothers Contracting as part of new scheme

A Yorkshire-headquartered high-voltage electrical engineering firm has pledged to address the industry's skills gap, by launching a new apprenticeship scheme – and is in the process of enrolling its first four candidates.

Smith Brothers will provide vital hands-on experience to the quartet of trainees, which will be dovetailed by a two-year City & Guilds academic course and three years with Utility and Construction Training (UCT).

The candidates include 19-year-old apprentice HV jointer Michael McNeill – who has been working on cable pulling and HV fault work for the past 12 months – as well as a trio of trainee fitters, including Rory Sharp (18), Cameron Galbraith (19), and Bronson Taylor (17), the latter of whom worked as a trainee fitter for Smith Brothers during the pandemic.

Upon the successful completion of their qualifications, each candidate will be given the opportunity to join the team on a permanent basis. "We want to offer people a job for life," explained Dave Ogden, managing director of Smith Brothers.

"As an employer, it's our responsibility to support the ambitions of those in our sector and region, and if you qualify as a jointer or fitter, you have a ready-made, lifelong career – anywhere in the world. It's important that we do our bit in addressing the skills gap when it comes to fostering the brightest and best in engineering talent."

The annual apprenticeship scheme is not solely reserved for school-leavers though, as Dave continued: "We take apprentices of all ages because we believe that everyone deserves a chance. Some of the best engineers left school and went straight into a labouring job, but years later, they might be keen to back up that practical experience with a formal qualification."



As well as nurturing practical skills, the senior management team at Smith Brothers places an equal amount of emphasis on creating a positive culture and is proud of its high level of staff retention. Dave concluded: "20% of our workforce has been with us for over 10 years – and our success isn't just down to the management, it's testament to all our personnel and the skill, talent, and effort these people bring, and have invested, into the business."

As part of the programme, trainees will spend one month per year at the training centre, 9-10 months on site with Smith Brothers, and the remaining time focused on completing the City and Guilds academic requirements.

For more information visit:  
[www.smithbrothersltd.co.uk](http://www.smithbrothersltd.co.uk)

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

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

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VCAT II, Stoke by Nayland Hotel, Essex - 31st Jan - 4th Feb (H)  
VCAT I, Stoke by Nayland Hotel, Essex - 7th - 10th Mar (H)  
VCAT III, Stoke by Nayland Hotel, Essex - 21st - 25th Mar (H)

### Ultrasound Analysis (ISO 18436-8)

UCAT I, The Stoke by Nayland Hotel, Essex - 13th - 16th Dec

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# TLV Upgrades Renowned Cospect Valve To Ease Installation And Minimise Process Disruption

Through a process of continued development and product enhancements, the renowned three-in-one COSPECT pressure reducing valve from steam system specialist TLV Euro Engineering has been upgraded and is now being offered with integrated pressure gauges as standard across the range.

Commenting for TLV Euro Engineering, general manager Michael Povey says: "By upgrading and offering the pressure gauges as standard across the range, we have enhanced the COSPECT to make it even more of a unified steam system solution. The integrated gauges also mean no additional pipework modification is required before or after the PRV, which reduces installation time and minimises process downtime."

Originally launched over 35 years ago, the COSPECT is a combined pilot-operated pressure reducing valve (PRV), cyclone separator, strainer and steam trap in a single component that overcomes the limitations and inadequacies of conventional PRVs and solves their

many associated problems – including fluctuations in primary and secondary pressures and valve hunting and vibration – to provide improved-quality dry steam at a constant pressure and temperature.

By eliminating the conventional arrangement and combining four separate components into a single valve, the COSPECT delivers numerous engineering benefits by incorporating fewer gaskets, spool pieces and fixings, improving moisture separation and providing accurate and stable pressure control. It is also more sensitive to downstream pressure fluctuations, is reliable in operation and its unified, modular construction facilitates easy, in-line maintenance.

In addition to the engineering benefits, the single component design of the five-model COSPECT makes it faster and easier to install, is lighter than the sum of using separate components, reduces the amount of insulation required and reduces the requirement for pipe support brackets, etc.



For further information on the COSPECT and other steam solutions, call TLV Euro Engineering on +44 (0)1242 227223, email [sales@tlv.co.uk](mailto:sales@tlv.co.uk) or visit [www.tlv.co.uk](http://www.tlv.co.uk).



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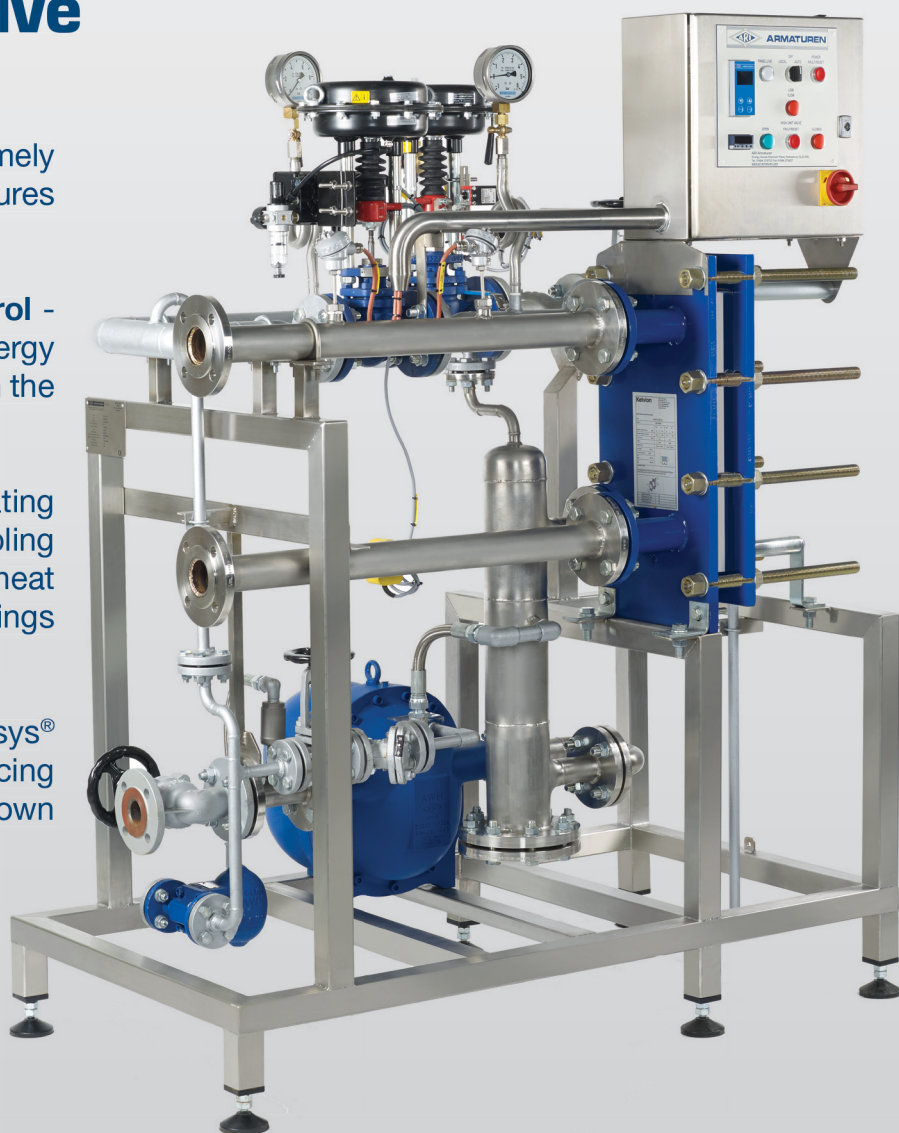
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# American Falls' mixer transformation gets wastewater sludge on the move

American Falls in Idaho is certainly no stranger to all things water. Almost a century ago, the entire town - nearly 350 residents and their homes, over 60 businesses, churches, schools, powerlines - and the entire railroad - had to move to make way for the American Falls Dam. \*



Today, American Falls' population of 4300 is served by a wastewater treatment center that is the envy of most small towns in the United States – a facility that in 2012 cost \$15M to build.

All has largely been well at the four-stage process municipal plant, which treats 500,000 gallons a day. The only obstacle in providing secondary treatment and disinfection of domestic and industrial wastes prior to discharging into the Snake River, has been with its submersible mixers. This installation in Idaho very much disproves the rather dismissive notion that all mixers are the same.

Despite laborious problems with the mixers installed during the upgrade to an MBR (Membrane Bioreactor) plant with UV disinfection,

water quality discharge from American Falls has been phenomenal. The plant achieves 99.8% BOD and TSS removal – which is crucial for the increasingly popular fishing waters of the Snake River; a much sought-after trout, bass and sturgeon paradise.

As Site Superintendent Scott Dalling candidly comments: "They call us 'wastewater professionals' so we'd better act like it – and we have a \$15M treatment plant – so we had better look after it!"

Scott and his five colleagues take tremendous pride in the current facility, which has come a long, long way from the first two-clarifier/trickling filter plant, commissioned in 1963.

"This major investment is something we keep right on top of", added Scott, who has worked at the plant for 14 years and became Site Superintendent in early 2019.

"Our only real ongoing issue has been the mixers, which we've tried everything with, but they are under-engineered for the solids in what should be a straightforward anoxic zone application."

## 'Good mixing is crucial'

He continued: "We had constant seal failures, which means lots of downtime. The mixers just couldn't move the higher solids concentration we had from the MBR. After numerous new mixers of the same type, the manufacturer eventually replaced all 10 units with what were meant to be





better, superior models, but we still had exactly the same problems. Good mixing is crucial. We had to try something different”.

Goble Sampson, a leading manufacturers’ representative in the Western United States, were approached for their help – recommending a mixer from Landia, which was taken on by American Falls for a month’s trial for the 24/7 operation.

“We know Landia’s pumps and mixers to have great longevity and reliability”, said Ryan Spanton from Goble Sampson. “And even though this wasn’t the toughest of duties, we wanted to show American Falls what a big difference there would be in having a mixer installed that is truly designed for mixing wastewater sludge. All too often the industry thinks that almost any mixer will do, but this just isn’t the case”.

The trial was made quicker and easier by the fact that Landia’s mixer could be installed on the existing guide rail. Landia’s ability to use existing masts and brackets saves considerable time and money.

“We saw the transformation straight away”, said Scott Dalling. “Before, the mixers we had were inefficient. The solids weren’t being pushed through properly, so we had settlement and dead zones, as well as foaming issues, but the new mixers worked terrific.



Following the successful trial, three of the ten mixers for the anoxic zones at American Falls have now been replaced by submersible mixers from Landia. Designed with a superior shaft sealing system, the mixers’ propeller is shaped for optimum flow/homogenisation.

## ‘Way more energy-efficient’

“This is an important point for operators”, says Ryan Spanton from Goble Sampson. “It is much

more beneficial for customers if they are provided with high quality, long-lasting equipment. In this case with Landia, not only is the hydraulic efficiency of their mixer far superior, but it is only pulling half of the amps, so it is way more energy-efficient. It is also less expensive to maintain and repair, so the savings for the owners really stack up.”

Scott Dalling concluded: “Goble Sampson have been a big help – and in Landia we have discovered very good, well-constructed equipment, that is far more economical for us in the long term, with none of the breakdowns. The Landia mixers are very easy to work on. Everything is straightforward. As and when we can secure funding, we’ll be replacing all the failing mixers with Landia.”

\* Most of the buildings were moved by horses pulling large wheeled carts. On one particular Sunday, the St. John Lutheran Church, while in transit, had several worshipers attending their service in the church while it was on wheels!



For more information visit:  
<https://www.landia.dk/>



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## 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 almost 120 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 market leading 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 superior 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.

For detailed technical information visit: [www.wolfsafety.com](http://www.wolfsafety.com)



## Enerpac Introduces Safe T Torque Checker for Torque Wrench Calibration

Enerpac introduces the Safe T Torque Checker, the company's first mobile torque wrench testing unit. The new portable tool offers a simple and accurate measurement of torque output wherever and whenever operators need it.

A correctly calibrated torque system will deliver the right output to fasten bolts accurately first time. But with continued use, even the best products can go out of calibration. Operators who ignore this risk damaging the application, or even worse—potentially compromising a joint's integrity through either under tightening or over tightening.

With the stakes being so high, hydraulic torque tools need to be calibrated regularly to prevent accidents from happening. Tools to do this have been widely available for many years. Yet, the reality is that torque output readings rarely reflect the actual torque delivered to the application on-site.

### A better way to measure torque output

The new Enerpac Safe T Torque Checker provides an

effective, simple to operate, solution to this problem. The system displays a digital readout in Nm showing the actual torque output of the whole hydraulic system. It allows the user to validate & test the exact system on-site, including items such as the hoses and pump, ensuring the accuracy of the torque reading is within +/- 1%.

### Convenience

The Safe T Torque Checker can be easily taken on-site, allowing operators to check torque output wherever and whenever it suits them. Features such as a splash-proof display and keypad, and an impact-resistant case provide the essential durability needed in harsh environments. The rechargeable long-life internal battery provides the freedom for operators to



check their whole torque system wherever they are working.

### Versatile and future-proof

The new unit is compatible with any Enerpac hydraulic torque wrench, up to 21.800 Nm, including both square drive and low-profile cassette types that fit the envelop and maximum capacity of the Safe T Torque Checker. The future-proof design uses the latest technology to ensure convenient use for many years to come.

To learn more about the latest Enerpac tools, visit the Enerpac Innovations page on [www.enerpac.com](http://www.enerpac.com)

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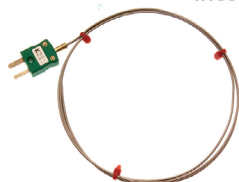
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# More exports for Hart

Hart Door Systems, the Newcastle upon Tyne-based specialised engineering company, has won more export work for projects in the Far East, Africa, and the Channel Islands.

Export Manager, John Loftus says the work is in addition to several recent overseas contracts which are now nearing completion. "Existing orders exceed 40 shutters with a further 19 about to be sent to a Hong Kong industrial site where the shutters will protect data equipment in an 18-storey building.

"At Guernsey Airport we have sent a further four

security shutters and at Tamale and Kumasi airports in Ghana we are supplying nine fire shutters between them for their baggage handling systems," adds Mr Loftus.

"Our breadth of product choice and our ability to problem solve to the highest of international standards is very much to our advantage in a competitive export market."



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# Rockwell Automation Celebrates 30 Years of Automation Fair® November 10-11

Registration now open for virtual automation event, showcasing cutting-edge innovations, technical education opportunities, and more

Rockwell Automation, Inc. (NYSE: ROK), the world's largest company dedicated to industrial automation and digital transformation, has announced the opening of registration for its 30th annual Automation Fair event, to be held virtually, November 10-11, 2021.

The Automation Fair event showcases the newest products, solutions, and services in industrial automation and digital transformation. Virtual attendees can experience innovations firsthand and talk to solution specialists from Rockwell Automation and members of its PartnerNetwork™ companies.

"More than 90 Products & Technology sessions will cover the latest products, technologies, solutions and services, and how they can help operations meet the manufacturing environment of today, tomorrow and the future," expands Jan Van Den Bossche, EMEA Senior Director of Technology & Domain Expertise at Rockwell Automation. "What is more, sessions and labs presented by Rockwell Automaton are eligible for professional development hours."

Malte Dieckelmann, EMEA Regional Vice President of Software Sales at Rockwell Automation, adds: "In addition to these sessions, attendees can get hands-on experience with the latest technology and product enhancements. These hands-on, interactive training labs cover the portfolio of products from Allen Bradley® and FactoryTalk® "

## Perspectives

Tuesday, November 9, kicks off the Automation Fair event with Perspectives, the highly anticipated

keynote experience, where executive leadership from Rockwell Automation and industry thought leaders share their visions for the future.

Perspectives, previously a media-only event, will be available by livestream and on demand to every registered attendee this year.

## Process Solutions User Group (PSUG)

The virtual event will also feature a keynote presentation from the Process Solutions User Group (PSUG), an interactive, industry-leading event, to gain greater insight into the latest process automation technologies. PSUG is held in conjunction with Automation Fair and provides a wealth of knowledge on control strategies, optimization, process safety, and batch automation.

## Immersive Exhibits

This year's show floor will be brought to you virtually, live from Houston, Texas, and features a new, interactive, and curated experience, including an exhibit that brings one customer's manufacturing story to life, and more than 100 exhibits from Rockwell Automation and members of its PartnerNetwork. The show floor will bring the technologies alive through demos and activities, with technical specialists available to discuss the newest solutions. An online host will walk you through the many exciting exhibits and give you exclusive access to product experts.

## Industry Forums

The event will also showcase several industry forums, featuring panel discussions from prominent industry leaders, including Automotive

and Tire; Chemical; Decarbonization and Emerging Energies; Food and Beverage; Life Sciences; Metals, Mining and Cement; OEM; Oil and Gas; Power and Energy; and Water Wastewater.

## Product & Technology Sessions

Join Rockwell Automation to learn how you can achieve the results your business demands. These virtual sessions will cover how the latest products, technologies, solutions and services can lift your operations to meet the needs of the manufacturing environment today, tomorrow and in the future. More than 15 sessions will be made available on demand.

"We're excited to welcome you back as we celebrate 30 years of Automation Fair with the people who have made it all possible – our customers," said Tina Dear, Vice President, Global Marketing, Rockwell Automation. "This year we'll feature everything you love, from engaging keynote presentations to technical sessions, industry-centric panel discussions, and our signature exciting show floor, showcasing the latest innovations and solutions from Rockwell Automation and members of our PartnerNetwork."

Registration for Automation Fair, Perspectives and PSUG is now open

Virtual attendees will experience the value and power of Rockwell's IT/OT expertise and have more opportunities than ever before to network with innovation experts, company executives, thought leaders, and industry peers.

For more information:  
[www.rockwellautomation.com](http://www.rockwellautomation.com)

# Hi-line offers smart and cost-effective way of meeting replacement compressed air filtration requirements

Hi-line Industries, an established and reputable UK manufacturer of high-quality compressed air purification equipment, is able to offer a cost-effective and proven way of meeting the ongoing demand for replacement compressed air filters.



Rather than pay for expensive and often low-efficiency OEM filters, an increasing number are turning to Hi-line's vast range of alternative elements, which frequently provide an 'upgrade' on competitor solutions at less cost.

Hi-line is not only renowned for its proprietary range of high-quality filter housings and energy-efficient elements, but its vast range of alternative elements to 'upgrade' and replace competitor products. There is no longer any need to pay a premium for replacement compressed air filters as Hi-line's alternative range of flow elements can cost circa 60-70% less than those available from compressor manufacturers. When considering there could be four elements on one system, the

saving is significant.

The alternative elements produced by Hi-line provide an exact match with the size and connection specifications of the originals. Hi-line's elements offer at least the performance of the original, although in many cases they actually provide higher performance because the company upgrades the technology. For instance, Hi-line uses pleated filter media rather than wrapped as it offers four times the cross-sectional area of standard elements.

The larger cross-sectional area provides a number of important advantages, including lower pressure drop, which in turn saves energy as the



compressor does not have to work as hard to force air through the filter. Further benefits include higher contamination-holding capacity, longer service life and greater flow characteristics - all for less financial outlay.

Hi-line alternative filter elements with 'pleated' media allow the original housing to give users the high-performance, low-cost filtration features enjoyed by Hi-line filter elements. However, Hi-line can of course supply its own die-cast aluminium filter housings, which are subject to alu-chrome treatment on both external and internal surfaces, and finished (externally) with a tough epoxy baked-on paint in compressed air blue (RAL 5015). These treatments provide long-term protection, even when subject to the harshest of conditions.

Another major advantage of using Hi-line is availability. The company stocks alternative elements worth a total of more than £1 million at its Midlands factory, ensuring circa 167,000 filter elements/cartridges are available for next-day delivery and installation. The Hi-line sales team takes advantage of fully computerised cross-referencing software to ensure the swift turnaround of enquiries for same-day despatch.

Further information is available from:  
[www.hilineindustries.com](http://www.hilineindustries.com)



# BCAS urges industry to consider nitrogen as an alternative to CO<sub>2</sub>

The British Compressed Air Society (BCAS) is urging food producers to consider the benefits of on-site nitrogen generation, to help mitigate the risk of CO<sub>2</sub> gas shortages in the future.

Recent news reports have focused on the impact that the rise in wholesale gas prices is having on the production of carbon dioxide. This is an essential gas used in the drinks industry for soft drinks and some beers, and in packaging to extend the shelf life of fresh food products.

Although the Government has introduced emergency support measures to ensure ongoing production at CF Industries' Teeside and Cheshire fertiliser plants, where CO<sub>2</sub> is produced as a by-product, supply chain issues remain, which are leading to some shortages in shops and a rise in food prices.

However, in several applications, nitrogen gas, which can be generated as part of an existing compressed air installation, can be used in place of carbon dioxide. Vanda Jones, Executive Director at BCAS explains why operators may want to consider alternatives to carbon dioxide, which can help to lower operating costs and ease supply chain issues.

## Says Vanda:

"Our manufacturing members have been promoting the benefits of on-site nitrogen generation for several years now - and the recent carbon dioxide supply issue, coupled with the numerous opportunities where nitrogen can be

used safely in place of CO<sub>2</sub> make this an ideal time for food producers to look at alternative solutions.

"As an inert gas, nitrogen can be used in place of carbon dioxide in smaller breweries, to remove oxygen when purging tanks, thus preventing oxidation and contamination. It can also be used for clean in place (CIP) pipework and vessel purging, for assisted filling to increase process speed and during bottling to help extend shelf life.

"Elsewhere in the food processing industry, modified atmosphere packaging is used to replace oxygen with nitrogen, significantly slowing down the process of decay by inhibiting oxidation and the growth of microbes.

"Unlike carbon dioxide, nitrogen can be produced cost-effectively as a by-product of the air compression process, which can reduce the cost of bought-in gas, in cylinders or in bulk, by as much as 90 per cent. Compatible with standard industrial compressor systems, many manufacturers now offer nitrogen generators, in which pre-treated air is filtered, and the oxygen, water and carbon dioxide removed. This leaves pure nitrogen, which can be captured at source, and reused for other processes.

"With only minimal investment in an on-site

nitrogen generator, this process enables companies to match their production to help meet gas demand, providing greater control over the volume of gas required.

"With some customers of BCAS members quoting pay-back periods of as little as one year when replacing bough-in cylinders with an on-site nitrogen generator, it is certainly worth speaking to your supplier to discover whether nitrogen gas could offer an alternative to an existing CO<sub>2</sub> supply.

"Not only could this help improve on-site productivity and ease the logistics of gas storage, but with forecasters predicting that energy prices will continue to rise, it could help to mitigate against future supply-chain issues too."

Food producers keen to learn more about on-site nitrogen generation can download a factsheet from the BCAS website at:  
<https://rebrand.ly/BCASnitrogen>  
or contact their BCAS supplier for further information.

# BOGE Compressors launches BOGE ecoline

## – an economy 4 to 30kW Plug & Play rotary screw compressor

BOGE, one of the world's leading manufacturers of high-performance compressors, has launched a line of economy screw compressors with immediate availability.



With BOGE's 'Made in Germany' reliability, BOGE ecoline delivers high operating hours, low servicing costs and includes next day delivery. This will come as positive news for many businesses facing the challenges of UK availability right now.

Ideal for the smaller industrial manufacturer, the ecoline screw compressor uses a belt-driven drive system and is oil-lubricated. It comes with standard options such as different pressure ratings, air receiver, refrigerant dryer and a 24 month warranty, extendable up to 5 years. The compressor includes an IE3 motor and BOGE

base control, which is also used in the current C-series compressor range. The air end is a 1st generation design used for many years in previous generations of BOGE Compressors and is manufactured by BOGE's factory in Germany.

Mark Whitmore, General Manager at BOGE says: "We've learnt from many of our customers that a low capital purchase price, immediate availability and reliability are crucial factors for this series of compressor. The typical business drivers such as total cost of ownership or extended warranty are not so important in applications where ecoline fits the bill. We've been able to meet the needs

of a wider customer base with this economy line, offering value for money but still with BOGE's outstanding technology and made in Germany reliability."

Feedback from the ecoline product launch at BOGE's 2021 Distributor Conference this week, has been overwhelmingly positive. Andy Callan, Managing Director at PCM Engineering, a distributor of BOGE compressors says: "I am hugely impressed with this latest series of screw compressor from BOGE. It really hits the mark for us and of course, stock availability and the competitive price is hugely desirable. It's also the low maintenance factor that's really important to our smaller industrial customers."

Stock of all compressors and service parts are available from BOGE's UK warehouse in Huddersfield, with next day delivery available.

For more information about BOGE Compressors' ecoline series or the company's latest screw compressors, please contact BOGE Compressors Ltd, Units 10-12 Park Valley Mills, Meltham Road, Huddersfield, HD4 7BH.  
Tel: +44 14 84-719921.  
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# Fundamentals of vibration analysis

## Why is vibration analysis essential?

Any machine with moving parts is designed to operate within a predefined level of vibration, but when this exceeds a certain threshold, it may be an indication that the machine is deteriorating.

Therefore, vibration is a useful tool for investigating the status of rotating machinery, such as electric motors, pumps and generators. Here, Chris Robson, sales director at electro mechanical specialist Houghton International, discusses the importance of vibration analysis.

In any machine, the amount of vibration depends on a number of factors — the exciting force, the closeness of frequency of these exciting forces to structural resonances or their multiples (harmonics), and the restraints the machine structure imposes to vibration. Vibration analysis is a non-intrusive, fast response, preventative maintenance solution that measures the vibration characteristics in rotating equipment based on three main parameters — velocity, displacement and acceleration.

As part of a predictive maintenance strategy, vibration analysis can prove crucial to predicting breakage, planning appropriate repair and substituting damaged parts before disaster strikes.

### How does it work?

An accelerometer is used to collect vibration readings which are analysed by software systems to detect anomalies with the machine. Its sensors are connected to the vibrating structure and read the incoming electrical voltage generated by the piezoelectric crystal. The analysis can be conducted on either the time waveforms (amplitude versus time) or on the frequency spectrum (amplitude versus frequency) by applying a Fourier transform on the time waveforms or on both.

A complex machine has many components, each generating its own vibration. Critical components like bearings, impellers and shafts in large rotating equipment require a more in-depth evaluation. In this case, a spectrum analysis is better to get a clearer picture of the vibration frequency.

The data collected using either of these methods is then recorded using a vibration transducer at various points around an electric motor, pump or generator. A qualified engineer will then analyse the findings, flag issues and recommend actions to prevent breakdown.

### Why is it needed?

Vibration analysis yields massive benefits for equipment owners, helping them spot issues early on and plan repairs, while minimising costs and reducing downtime. Acceptable operational vibration is pre-defined either through long-term utilisation, maintenance history or through standards established by the OEM. If this limit is breached, there is an indication of a potential defect or health problem.

Furthermore, vibration analysis supports remote condition monitoring, as it can be performed while the system is running. If a fault is observed on one of the components, repairs can be scheduled in advance during non-productive times to avoid costly downtime.

New developments in automated accelerators and artificial intelligence-equipped sensors allow even non-specialist users to work with vibration analysis. When the vibration level of an equipment is exceeded, the owner receives message alerts.



However, an experienced analyst or technician is still needed for making sense of the findings and suggest the best course of action. While most vibration analysis systems can provide a good level of data analysis, an experienced engineer can provide a more informed interpretation of the readings and advise machine owners on the necessary steps.

At Houghton International, we use our expertise to plan a suitable analysis schedule, depending on the criticality of the application. Following the vibration analysis, we suggest the best course of action, which could range from balancing the equipment on site, replacing bearings or the complete removal of the unit from site for repair and overhaul in our fully equipped workshop.

As vibration analysis brings a great deal of benefits to engineers, from real-time reaction to reduced downtime and increased operational safety, it is important that they make the most of it by working with a specialised technician.

Find out more about our vibration analysis services at  
[www.houghton-international.com](http://www.houghton-international.com)

# Freudenberg's Simmerring® – innovative, functional and long lasting

The right design for every operating condition in the process industry

## SEALING SOLUTIONS FOR DRIVE SHAFTS IN THE PROCESS INDUSTRY



Freudenberg Sealing Technologies has developed a broad portfolio of Simmerring® radial shaft seals to meet the diverse challenges of the food, beverage, pharmaceutical and chemical industries. This includes various product families in different materials that meet the industry specific legal requirements.

The original Simmerring® serves as a flexible and highly durable solution for sealing drive shafts. There are special designs made of elastomer materials for use in the process industry, such as 75 Fluoroprene® XP 45, 70 EPDM 291 or 70 NBR 335. These have been specially developed for contact with foods and pharmaceuticals and are also certified in accordance with industry- and country-specific standards. The Simmerring® product family consists of different designs for the process industry: BAUM as a friction-optimised standard design with a rubberised outer sleeve, BAUMSL with a protective lip for heavily contaminated environments, and BAC as a partially or fully encapsulated radial shaft seal for increased hygiene requirements. The Simmerring® offers many advantages, such

as high resistance to media, good adaptability to customer-specific requirements, and the availability of numerous tools in standard dimensions.

Based on the design of the proven Simmerring®, the Simmerring® MSS3 is available both with and without a dust lip. The combination of non-food & beverage standard catalogue items with food-grade PTFE lip provides protection against aggressive media and is suited for direct contact with foods and pharmaceuticals. The advantages include quick availability, adaptability to customer-specific application conditions and the availability of numerous tools for standard dimensions. A distinction is made between the MSS3 as a modified standard BA design with bonded special fleece or a PTFE disc as a protective lip against the finest dirt accumulation and the MSS3 Hygienic Design with an integrated PTFE disc that covers the Simmerring® hygienically and free of dead space.

The Simmerring® B2PT was developed for higher pressures, extreme chemical and thermal loads,

dry running or deficient lubrication. The metal housing is made of stainless steel 1.4571 and the sealing lip of a high-performance PTFE material, such as Quantum® PTFE F18245 or Quantum® PTFE F53722. The Simmerring® B2PT enables stick-slip-free operation and can be adapted to customer-specific requirements. The following designs are available: B2PT for extreme thermal and chemical loads, B2PT Hygienic for increased hygiene requirements and B2PT Split as a version with an additional dust lip.

The Simmerring® BlueSeal is ideal for applications with low lubrication, high speeds, extreme temperatures and aggressive media. Besides its high thermal and chemical resistance, it also offers a friction-optimised PTFE lip design and, like its related products, can be adapted to customer-specific requirements. The three shapes BlueSeal BA as a standard design, BlueSeal B1 with a metallic adhesive part, BlueSeal B1 Reverse with a metallic outer sleeve and BlueSeal BA Reverse Hygienic Design with a PTFE outer sleeve in "Reverse Lip Design" are available in the materials Quantum® PTFE F18245 and Quantum® PTFE F53722.

The wide-ranging portfolio of radial shaft seals from Freudenberg Sealing Technologies includes a number of other food-compliant and hygienic solutions. These are made of high-performance materials and each has a design tailored to specific applications. These include, for example, the Gerromatic or the Radiamatic® HTS II. The experts at Freudenberg Sealing Technologies constantly monitor current market needs and proactively develop new product designs and sealing materials to best meet them.

More information can be found here:  
[www.fst.com](http://www.fst.com)



# Kaydon Bearings Shine In Diamond Tool Grinding Application

Coborn Engineering, which designs and manufactures specialised CNC grinding, polishing and lapping machines for the diamond tooling and gemstone industries, is taking advantage of Kaydon bearings from R.A. Rodriguez (U.K.) Limited to help boost the performance of its industry-leading Planetary Grinding (PG) Series machines.

In this extremely high-precision application, Kaydon bearings are an essential element of the machine, allowing users to process diamond cutting tools to radius form waviness levels of 50 nm (0.00005 mm).

For almost 80 years, Romford-based Coborn Engineering has been actively involved in many aspects of machine tool design and manufacture. Established in 1942 the company initially produced high-precision spindle and balancing machines. However, by the 1960s, activity had diversified into planetary grinding machines for the gem and single-crystal diamond (SCD) industries, and by the late 1970s into reciprocating grinding machines for polycrystalline diamond.

The latest version of Coborn's PG Series the PG6, is an automatic, ultra-high precision grinding machine for processing natural or synthetic SCD tools. Coborn's PG6 is a world-first engineering solution that relies on high-quality bearings for the precision manufacture of controlled waviness and complex geometry tools.

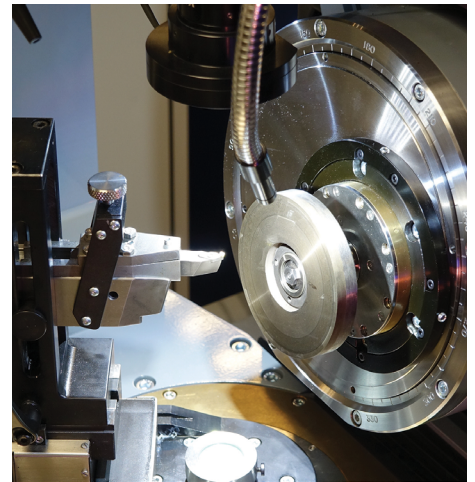


"We selected Kaydon bearings from R.A. Rodriguez (U.K.) Limited because they give us the precision needed by PG machine users, who typically want to process synthetic and natural diamond tooling to levels better than 50 nm," explains Robert Bullman, Sales Manager at Coborn.

To verify performance, Coborn can perform a TRC [tool radius check], which is essentially a microscope with image analysis software to measure tool radius and radius waviness.

"The system generates custom-designed QC graphical data sheets that we can then supply with the associated tool," explains Mr Bullman. "Our PG Series machines generate waviness values of sub 50 nm, which is market leading. The bearings are a key part of the machine, allowing users to process diamond tooling to these accuracies." Coborn's PG6 also features a closed loop nano-stop for more accurate finishing of the radius form, while the high-resolution PoE camera works in conjunction with an improved optical lens system to enable tool measurements and geometry validation.

The company currently manufactures around 20 PG Series machines every year, although this number is now rising as global economies pick up following the Covid-19 pandemic. Coborn exports around 90% of its machines overseas, including many to China, the USA and Germany. The company is the only market player offering a commercially built, off-the-shelf machine for the



single-crystal diamond tool industry. All Coborn PG6 machines feature the same Kaydon bearing set.

R.A. Rodriguez (U.K.) Limited supplies Coborn with Kaydon KD series high-precision, angular contact, preloaded bearings in duplex (back-to-back) configuration. Each Coborn PG machine requires a pair of these 7-inch diameter bearings. The company has been a customer of R.A. Rodriguez (U.K.) Limited for the past 22 years and has been using Kaydon KD series bearings since 2013.

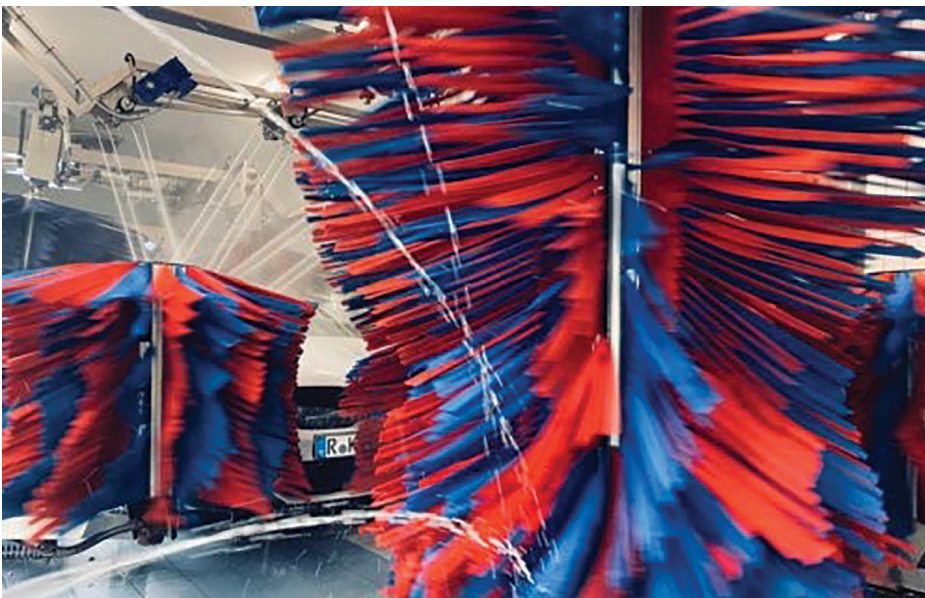
Concludes Mr Bullman: "We are a very well established customer of R.A. Rodriguez (U.K.) Limited and appreciate their high-quality products and the support offered over the years, which continues to this day."

KAYDON, an SKF brand - is a world leader in standard and custom, thin-section bearings and bearing assemblies for a wide range of manufacturing and processing industries. The company, which invented the thin section bearing in 1943, is also a major supplier of turntable and remanufactured bearings, all of which are available in the UK, Ireland, Scandinavia and Turkey from R. A. Rodriguez. It has represented KAYDON for over 50 years and in that time has met the needs of an extensive variety of applications.

For more information visit:  
[www.rarodriguez.co.uk](http://www.rarodriguez.co.uk)

# Changing to NSK Molded-Oil bearings reduces maintenance costs at a car wash

The operator of a car wash line in Germany repeatedly had to replace bearings in the rotary unions of the system's wash heads, leading to costs of over €12,000 per annum for spare parts alone. However, maintenance costs were reduced to zero after replacing the bearings with NSK Molded-Oil deep groove ball bearings featuring DDU seals.



An average car wash in Germany cleans more than 110,000 cars every year. In terms of the drive components in the wash bars and heads, the application is equivalent to an endurance test with water and cleaning agent spray. The bearings in the rotary unions of the wash heads undergo the same treatment, and in this case, they were not up to the task.

Personnel at the car wash company had to replace the deep groove ball bearings of the rotary unions several times a year. Therefore, the company contacted NSK to ask for advice on how to lengthen the service life of the bearings.

Analysis of the defective bearings quickly revealed corrosion and the absence of grease, which had washed off. The cause: the non-abrasive seals were unable to prevent wash water from penetrating the bearings, thus rinsing away the grease.

NSK suggested replacing the bearings with Molded-Oil deep groove ball bearings featuring DU seals on both sides. In this bearing, a carrier material incorporates the lubricant, releasing it steadily over a long period. As a result, the service life of these bearings (which are available in ball, spherical roller and tapered roller variants) is more

than twice that of bearings with grease lubrication, particularly in environments exposed to water and dust. In addition, maintenance intervals are significantly longer because Molded-Oil technology ensures permanent lubrication. And because the bearing runs grease-free without any need for replenishment, the operating environment remains clean.

Molded-Oil bearings are available with various seals. For example, the rotary unions at the car wash use bearings with abrasive DU seals on both sides (DDU), reliably preventing water and moisture from entering even when this is a constant feature of the operating environment.

After replacing the bearings, the rotating unions at the car wash ran perfectly. In the first year alone, the company saved more than €11,900 in maintenance costs. The previous costs of over €12,000 for bearings and a very low estimate of labour costs are now set against a one-time investment of €618 for the Molded-Oil deep groove ball bearings. Recouping this investment took less than three weeks.

For more information visit:  
[www.nsk.com](http://www.nsk.com)



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# Exciting New Member Service Launch From HAE EHA

Hire Association Europe (HAE) and the Event Hire Association (EHA) is launching HireSecure from October 1, 2021, a new and improved Short-Term Hired Insurance product replacing HireGuard.



HireSecure will be available to all members to cover accidental loss or damage, fraudulent hire, theft, vandalism and malicious damage on owned or cross-hired equipment. This follows the announcement that Towergate Insurance Brokers will take over responsibility for the trade association's insurance services as its new, sole broker.

An extensive review of its insurance programmes led HAE EHA's Main Board and Executive to change service provider, in order to provide wider support for its 800 members across the hire, rental and events sector. The review was undertaken through a market-testing exercise and focused

on looking at the most appropriate and beneficial range of products to be offered to members going forward.

Paul Gaze, HAE EHA Chief Executive Officer, said: "Following a competitive tender, we are delighted to welcome Towergate as our new insurance partner. Considering the challenges faced by members since the beginning of 2020, we felt it was necessary to examine the insurance marketplace and review HAE Insurance Services and EHA Insurance Services products in order to provide the most comprehensive support possible to our very varied membership base. We are confident that, in Towergate, we have found the

best solution all round from a partner that really understands our members' markets."

Towergate was chosen as it is the UK's leading independent broker and risk management advisor, specialising in bespoke policies for SMEs and commercial entities of all sizes, with extensive experience in the hire and events marketplace.

Joe Thelwell, CEO of Towergate, says the aim of the partnership is to provide HAE EHA members with a wide range of products, tailored to their requirements. He added: "I'm incredibly excited at the opportunity of bringing together all the experience our two great businesses have to offer, delivering first class insurance and risk management advice to the membership."

For more information on its insurance services call HAE EHA on  
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or visit [hae.org.uk](http://hae.org.uk) or [eha.org.uk](http://eha.org.uk)

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  - peak load requirements
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# Brammer Buck & Hickman Introduces Innovative Safety Footwear

Following the launch of the comprehensive GISS PPE product range in the UK, Brammer Buck & Hickman, the UK's leading supplier of industrial maintenance, repair and overhaul (MRO) products and services, is pleased to introduce the GISS Linzor Safety Boot and GISS Luxsar Safety Shoe.

Both GISS Linzor Safety Boot and GISS Luxsar Safety Shoe are innovative in design and performance. Incorporating Infinergy® for an increased level of comfort and Putek for extremely high levels of abrasion, the footwear offers all day comfort with extreme durability.

The Infinergy® technology helps to maintain energy levels for longer than any traditional sole with the added benefit of lightness, freedom of movement, anti-fatigue and reduction of musculoskeletal disorders. The main feature of Infinergy® is its high resilience. Tests of the resilience elasticity under ISO 8307 (the ball

rebound test) and under DIN 53512 show that Infinergy® achieves a rebound of over 55%.

The Putek technology offers a lightweight, water-repellent upper which is highly resistant to abrasion, is ultra-light and ultra-breathable meaning users receive an extremely comfortable shoe, while overall improving user wellbeing.

The GISS Linzor Safety Boot and GISS Luxsar Safety Shoe form part of the GISS range, which offers a wide choice of protective clothing and equipment for a complete head-to-toe solution of fully compliant high-quality PPE. A colour 68 page



catalogue detailing the range is available online at <https://uk.rubix.com/catalogue-library>

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/giss>.

# Snickers Workwear – Work Together With You For Climate Control

New styles from Snickers Workwear deliver winter warmth and cooling comfort when you need it.



Not only will you stay warm with Snickers Workwear's 37.5® Technology clothing, you'll look and feel cool too. With styles for both professional tradesmen and women, they excel

at ventilation to keep you cool and moisture transportation to stop you getting cold. They work together to keep you working comfortably wherever you are on site.

The 37.5® Technology fabric is a very quick-drying material that captures and releases moisture vapour – like your sweat – for superior coolness and dry working comfort. It's integrated into selected Snickers Workwear base- mid- and top-layer garments to keep you working at your best whatever the weather.

After all, keeping a balanced work temperature is not just about staying cool and in great shape, it's a matter of your wellbeing and job safety. So, to make sure you get the right protection, visibility, flexibility, durability and ventilation, check out the Climate Control garments from Snickers Workwear that work together to suit your workday.

For more information on Snickers Workwear's Climate Control garments visit [www.snickersworkwear.co.uk](http://www.snickersworkwear.co.uk) alternatively, call the Snickers Workwear Helpline on 01484 854788.

# Outdoor enclosures – the unsung heroes

Outdoor enclosures, the ones you see beside the road, on the pavement, trackside on the railways. The ones you walk past every day without giving them a second thought, these metal boxes, more often than not contain highly critical equipment that is fundamental to our everyday life.

Broadband connection, the controls of signalling on the railways, the important instructions on overhead motorway gantries, these functions and many more impact our daily activity. Whether we are working from home or travelling, the controls that make these things possible are housed out of sight and out of mind. That's not a bad thing, they are designed to be inconspicuous to the public.

Outdoor enclosures need to be many things, they have to be functional and flexible to house various forms of equipment, they have to aesthetically pleasing whilst also being secure enough to be placed in both remote and busy public spaces. Surviving the elements is another critical feature, they could be placed outdoors for in excess of 10 years whilst dealing with the hottest summers and harshest winters. So, whilst outdoor enclosures may seem a fairly innocuous feature there's

actually a great deal of design and innovation in them.

When equipment has to be placed outdoors, it's not just one factor that has to be considered. Unlike indoor applications there are so many more variables that need to be taken into account.

Let's talk about the weather for instance. Heat and humidity in the summer, cold and ice in the winter; not to mention the wind and rain. Faced with the elements the enclosures design, construction and material used needs to withstand everything the weather can throw at it. Using powder coated Aluminium means the enclosure is protected from the outside elements, we at Rittal also give the enclosure a double skin.

Having a double skin does many things, it helps with the UV solar gain during warmer times

protecting the equipment internally just that little bit more from overheating. Alternatively, if cooling (passive or active) is required, the dual casing makes this more manageable. A double skin also means additional heat when the temperature drops, rather than the heat dissipating quickly through the walls of the cabinet. Heat from the equipment or an internal heater means critical equipment can be kept at its optimum working temperature whether its summer or winter.

A double skin also means better protection from intentional or accidental damage. Outer skins can easily be replaced bringing the enclosure back to its original condition whilst the inner skin protects the internal equipment whilst the repair works are being carried out. No need to replace the whole enclosure if only the outer shell is damaged.

Other key design features are the ones that keep outside elements outside. For outdoor enclosure one key element is the Ingress Protection (IP) rating achieved. We would suggest IP55 rating as being sufficient for an outdoor enclosure. This means the cabinet is protected from wind driven rain and dust.

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What is of great importance, is that the enclosure is designed so that standing water does not pool on the enclosure or sit on the enclosure seals. If the seals are protected, then the risk of leakage into the enclosure is low. Enclosures where water can sit for a prolonged period of times means eventually a breakdown in the seal material. If this standing water, then goes onto freeze it can cause a gap between the enclosure door and housing. Overhanging roofs that fully protect the enclosure door seal is an imperative design feature that must not be overlooked when placing such a product outdoors.

Security is critical outdoor. Whether this be specific lock types dependant on customer and application, or maybe even remote access could be required. These features need to be options to give the end client peace of mind. Whether the cabinet is in a crowded busy town centre, a remote or an airport runway, access to the inside of the enclosure needs to be limited as much as possible to those who don't have the authority.

Whilst the outer design of the cabinet is arguably the most important the internals of the cabinet need to be versatile, flexible and also future proofed.

Technology moves at such a rate these days that in some instances by the time a system is



deployed the electrical components within it have been superseded. By having a more flexible system for mounting within the cabinet this can mean the ability to upgrade at a later date using the existing enclosures. By doing so it reduces the need for downtime, reduces labour and parts costs and overall saves the end client time and money by allowing a system to be online in a shorter timescale.

The need for outdoor systems is increasing due to the ever-expanding requirement for all things

to be connected. This need will only increase but it is paramount that when a system is to be placed outside serious consideration is given to the design of the housing that the critical infrastructure equipment will sit in. Whether it be telecoms, rail, airports or highways the overriding factors are the same. Protection from the outside world is key!

Further information can be found at  
[www.rittal.com](http://www.rittal.com)  
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# Snap-on's Level 5™ asset management system is network ready

As engineering managers face relentless pressure to deliver improved productivity, often with fewer skilled hands and tighter budgets, the benefits of professional tool storage and management become stronger than ever.



Snap-on Industrial's Level 5™ automated total asset management system brings order to any workplace, enabling engineers and technicians to know exactly where to find every tool when they need it, saving time and easing stress.

How useful would it be if all your workshop's valuable tools could be tracked from one central point? Snap-on's Level 5™ system makes that possible. It provides complete reports on everything managers or supervisors need to keep an eye on. They are even informed when a tool needs to be refilled or ordered.

And then there's FOD. The threat of foreign object damage is a real and present danger in many engineering workplaces. Using Snap-on Level 5™ minimises the risk of human error, as automated tool control constantly tracks every tool and detects which tools have been removed

or returned, ensuring greater protection against FOD.

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. Other systems require additional steps to scan or log activity. The Snap-on system does this automatically so users save time and don't have to depend on other steps to ensure accurate results.

Snap-on's Level 5™ ATC boxes are network ready, using either Ethernet or wireless connection. That enables supervisors to review activity at all Level 5 boxes in their location, whether they are on or off-line, from one central computer. They can check the status of each box, including the number of tools issued, while identifying all active users.

**Major benefits of the system include:**

- **No individual tool scanning required**
- **No RFID tags to install or replace**
- **No limitations on tool size: from ¼" screwdriver bit to just less than the size of the drawer**
- **Intuitive interface, with an easy to use 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.**

Snap-on 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. And using Snap-on's proprietary software managers can control access from a system or network. Access control maintains productivity while protecting tools from unauthorised users.

Says Richard Packham, Director UK & Europe for Snap-on Industrial: "Snap-on's Level 5 automated system takes asset management to an entirely new level. The ability to monitor several boxes from one central computer offers a huge advantage to engineering managers and supervisors."

For technical details visit:

[www.snapon.com](http://www.snapon.com),

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PRECISION ENGINEERING SERVICES

## Rubix launches nationwide cutting and machining division

The leading multi-specialist industrial supplies and services provider in the UK – Rubix – is launching a nationwide specialist cutting tools and machining division.

'Rubix Cutting & Machining' will provide access to standard cutting tools, best in class turn around for bespoke special tooling solutions, product proving, as-new regrind and recoating services and on site technical support to customers across the UK & Ireland with cutting and machining needs supported by all the leading brands.

The new division integrates as a single entity the company's cutting and machining technical competency centres and expert specialist engineers from the South West to the North East of the country. When it comes to metal removal, this will make it even easier for our customers to access the most effective solution to their processes, product needs or problems.

Blending that expertise and experience with the buying power of the nation's leader in industrial

supplies means Rubix Cutting & Machining is well placed to provide customers with the right cutting and machining tools they need at the right price. It will also be there to deliver the right services and technical solutions based on each customer's specific requirements.

"Cutting and machining is a highly specialist area in terms of product supply and the key ancillary services that support those products" said Mark Dixon – CEO of Rubix in the UK and Ireland. "Over recent years we have built an enviable reputation in meeting the needs of cutting and machining engineers in some of the nation's biggest manufacturers, as well as specialist engineering shops. This began in our product proving and technical competency centre in Wolverhampton and spread nationwide by bringing leading providers across the country into the Rubix family."

"This new division is simply about taking that expertise, that track record and the respect that this has earned from our customers and uniting it under one division to make it even easier for our customers to access the products, skills, services and know-how that they need."



Your nationwide experts in cutting and machining

Nigel Banks, MD of Services Division for Rubix in the UK, who will run the new Rubix Cutting & Machining division, said:

"We plan to expand our presence and customer base over the coming years to consolidate this leading position. We want to be seen as the customer's first choice cutting and machining technical partner for products and solutions across the country."

[www.rubix.com](http://www.rubix.com)

# Hellberg Safety – The Most Complete Range of Hearing Protection Solutions

The new and improved technology throughout the Hellberg Safety communications product range delivers the most advanced protection.



Hazardous work environments demand effective and reliable communication between people. Sometimes you need to talk and sometimes you just have to listen. With a range of up to 3km the new Hellberg

Local hearing protector and communication headset makes it easy to talk to with colleagues - without the hassle of taking off your ear defenders.

It's just one PPE solution in a wide range of Eye, Face, Hearing and Communication solutions that

have been developed and independently tested in "real-life" situations for optimal performance to deliver products that are comfortable and reliable in any risk environment.

The SECURE series features multi-functional and foldable passive ear defenders available in 3 protection levels to advanced electronic communication solutions.

SECURE ACTIVE allows you to communicate with your colleagues, hear warning signals and other important information while protected from hazardous noise. SECURE RELAX protects your hearing while you enjoy listening to your favourite radio station, while SECURE REACT and the

including the cutting edge Xstream products allow you to listen to AM/FM radio and communicate with your colleagues while still being protected from harmful noise.

The SAFE face protection and eyewear range offers customised visors and eyewear solutions for protection against a variety of hazards. They're all ergonomically designed to be practical and effective and are fully compatible with the SECURE system.

Getting information on the new Hellberg Safety product range is easy - call the Hultafors Group UK Helpline on 01484 854788, checkout the website [www.hellbergsafety.com](http://www.hellbergsafety.com) or email [sales@hultaforsgroup.co.uk](mailto:sales@hultaforsgroup.co.uk)

# Stride out in the All-NEW Work Trousers from Snickers Workwear.

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Snickers Workwear is continuing to make great strides in Work Trousers design and functionality while still increasing its commitment to environmental responsibility.

Sustainable fabrics, body-mapping designs and improved performance are key features in the all-New Work trousers for men and women. Wherever they're working, whenever they're on task and whatever the weather, there's a pair of trousers to suit.

There's new designs for both men and women with unrivalled functionality in the AllroundWork

and FlexiWork ranges. The 4-Way Stretch features ensure maximum working mobility while the loose or slim fit designs deliver maximum working comfort all day, every day.

With great ergonomic fit and superb value for money there's optional features such as detachable holsters, Canvas+ fabrics for durability and Cordura reinforcements for extra durability. You can also choose trousers with or without the KneeGuard® Pro System which will deliver certified knee protection if you need it.

Check out all the Work Trousers at



[snickersworkwear.co.uk](http://snickersworkwear.co.uk) – for the optimal choice for craftsmen and women who need to get every job done comfortably and efficiently on site.

Getting information on the Snickers' new Stretch Trousers is easy. You can call the Snickers Helpline on 01484 854788, checkout the website and download a digital catalogue at [www.snickersworkwear.co.uk](http://www.snickersworkwear.co.uk) or email [sales@hultaforsgroup.co.uk](mailto:sales@hultaforsgroup.co.uk)



# Snickers Workwear and EMMA Safety Footwear Lead the Way with Sustainable Practice.

These forward-thinking brands are pioneering sustainable business practices in their industries.

Did you know that bridging the 'The Circularity Gap' by embracing the circular economy could shrink global greenhouse gas emissions by 39%!\* That's why Emma Safety footwear has become a leader in sustainability having created the world's very first '100% Circular' safety footwear range,

While Snickers Workwear is at the forefront of sustainability in the workwear industry by sourcing the highest quality, most hard-wearing products with as little environmental impact as possible. Ensuring garments are made from 'preferred fibres', enhances durability and comfort to create

hard-wearing workwear with a long product lifetime which is key to reducing waste.

The combined result is environmentally-friendly, ergonomically designed dual-purpose working clothes and footwear that are not only designed to meet the physical demands that tradesmen and women face at work but are also ideal for some sports and leisure activities – and reducing your carbon footprint too!

\* Circularity Gap Report 2021 at <https://www.cea.org.cy/wp-content/uploads/2021/03/circularity-gap-report-2021.pdf>



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

# Hultafors Tools' NEW Chisels – A striking balance between precision, sharpness and durability.

This newly extended award-winning range of HDC Chisels now has a superior ergonomic design and 11 different blade widths up to 40mm.



HDC Chisels are designed for jobs on site that need strength and precision for accurate chiselling work.

All the blades are forged using a unique steel formula into a one-piece I-beam construction for strength and rigidity with a robust profile for extreme breaking strength and a design that maximises power transmission downwards through the tool.

Additional features include an ergonomic

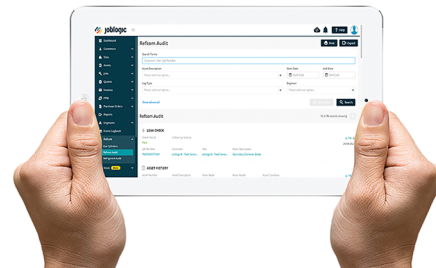
Santoprene handle with an impact resistant nylon striker that can be replaced when worn down. The entire blade, including the handle, can be placed flat against the surface which allows you to cut parallel to a flat surface.

All the chisels are supplied with holsters that protect the cutting edge to prevent damage or the possible injury when handling in toolboxes.

Getting more information on the Hultafors Tools range is easy. You can call the Helpline on 01484 854788, check out [www.hultafors.co.uk](http://www.hultafors.co.uk) or email [sales@hultaforsgroup.co.uk](mailto:sales@hultaforsgroup.co.uk)

# New Joblogic Refcom Software Module Ensures Fast and Accurate F-GAS Compliance

Joblogic and Refcom have collaborated to launch a software module in the UK that ensures F-Gas compliance. It also makes it simpler and faster for HVAC engineers to comply since they can now input the data directly into a compliant logbook via a mobile app.



Legislation demands that an engineer must track and record any movement of refrigerant gas in an official logbook. There also needs to be a back-office system that shows all the work completed on equipment.

Says Greg Hill, Principal Consultant at Joblogic: "While it is possible to record work completed on paper-based systems this can be time consuming and lead to errors when a second person inputs the data into the back-office system. With each piece of equipment and all the cylinders having their own logbooks, it can take time to find all the necessary paperwork, discover what needs completing on an asset, do the work and then fill in each of the logbooks with all the correct information.

"Using the Refcom F-Gas Tracking Module, the engineer will know what work they need to do before they arrive to ensure that they have the right tools and equipment to get it right first time. Having completed the work they simply input the relevant information into the Joblogic Refcom App on their phone or tablet which will then automatically populate the online logbooks and the back-office systems to save time and avoid any errors."

Further time savings are possible if a company decides to use QR codes to identify individual assets within an HVAC system since the engineer can then simply scan the equipment to find out about its service history and the work that needs doing. This will also automatically find the form for that asset to make it easier and faster to complete

and record the job. With each asset in a system having its own logbook, automating the track and trace system will save hours of time so that the engineer can complete more work.

Says Graeme Fox, Head of Technical for Refcom: "We wanted a software system that would report data straight into the correct forms to ensure compliance. We also wanted to make the task simpler and faster for our members and take advantage of all the technology that is available to ensure accurate track and trace, such as for example using QR codes.

"It is vital that HVAC engineers are fully compliant with F-Gas legislation and there have been occasions where data has been missed or the logbook has been incorrectly filled in so that a job was not compliant. This is generally an honest mistake and people may not even realise that they have not met the legislative needs."

All Refcom members will receive a free user licence for the new software module which includes a back-office reporting system, logbooks and the facility to add the mobile app for an engineer. This allows an organisation to plan and schedule future maintenance work and customise and produce reports in whatever format they want.

For a free demonstration of the Joblogic Refcom F-Gas tracking and compliance software visit <https://www.joblogic.com/features/fgas-compliance-software/>.



# BCN3D acquires 3D printing cloud platform AstroPrint to propel its software solutions forward

BCN3D has acquired AstroPrint, a 3D printing software company known for its sophisticated cloud solutions that allow users to manage printers with ease and efficiency.



BCN3D acquires 3D printing cloud platform AstroPrint

Both companies entered into an acquisition agreement last April and completed the transaction in July. This investment provides BCN3D with the opportunity to not only release a new cloud platform, but to also have an experienced software team dedicated to the future development of BCN3D's 3D printing solutions. Founded in San Diego, California in 2013, AstroPrint is one of the most well established cloud software platforms with more than 200.000 registered users in 130 different countries, 60% of which being based in the US and with an average of 2.000 printers connected simultaneously. BCN3D will maintain AstroPrint as an independent platform and will continue to develop new functionalities for its user base.

Following this first acquisition, BCN3D will continue to explore inorganic growth opportunities to develop its long-term vision

of providing high-grade solutions that enable innovators to create the future. The integration of AstroPrint's technology in the BCN3D Cloud will undoubtedly bear benefits for both its clients and the development of Industry 4.0 in the near future and beyond. BCN3D will utilize the entire software engineering team of AstroPrint for future developments to create brand new products never seen before in the 3D printing industry. The fusion of these two software teams will be spearheaded by Co-founder and CTO Daniel Arroyo, who will also now take up his role as Chief Software Officer of BCN3D.

"We see this as a new chapter in our quest for offering the absolute best possible solution to clients across both hardware and software. We are certain that this acquisition of a company with such expertise in this field will serve to boost our BCN3D printing profile to its full potential, and that

the merging of our teams will undoubtedly entail countless benefits." - Xavier Martínez Faneca, CEO of BCN3D.

"Our collaboration with BCN3D brings us the challenge and pleasure of developing more advanced solutions for BCN3D clients. We are super excited to pair our software with BCN3D's hardware in order to unlock tremendous value via deep hardware and software integrations and innovations." - Daniel Arroyo, CTO and Co-founder of AstroPrint, and newly appointed Chief Software Officer of BCN3D.

## About BCN3D

BCN3D is one of the leading developers and manufacturers of 3D printing solutions in the world with an installed base in more than 60 countries. Its main clients include Nissan, BMW, NASA, Camper, Louis Vuitton and the Massachusetts Institute of Technology (MIT).

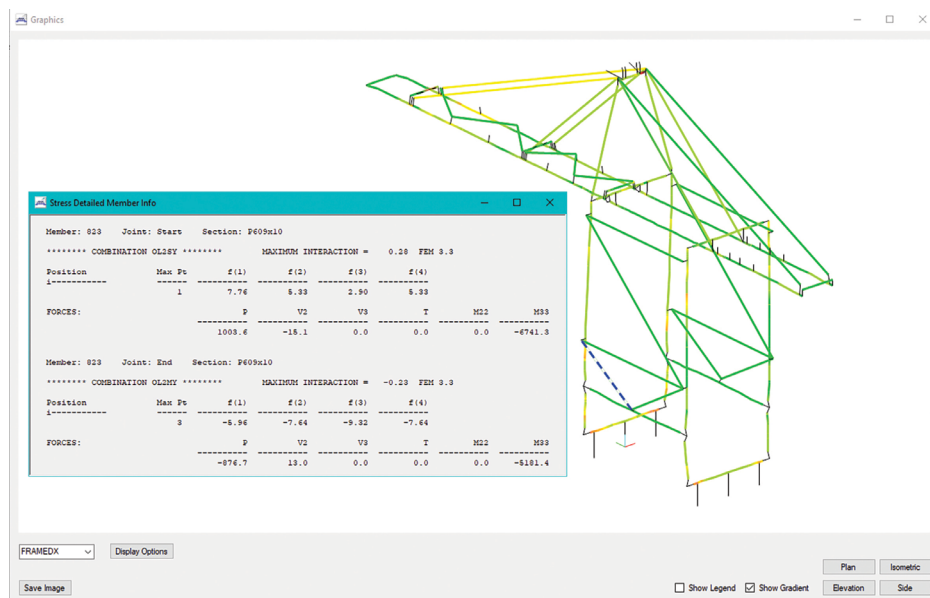
## About AstroPrint

AstroPrint is a standardized Operating System and developer ecosystem for 3D Printers. Often called 'The Microsoft of the 3D Printing Industry,' it aims to become the standard platform that controls and distributes content to 3D printers. The company was originally accelerated by Techstars and counts Stanley Ventures, Mundi Ventures and 500 Startups across its investors.

<https://www.bcn3d.com>

# CPA Upgrades Proprietary Crane Analysis Software

Casper, Phillips & Associates Inc. (CPA) has upgraded its proprietary crane analysis software, used for pre- and post-processing during finite element analysis of cranes.



The crane analysis software suite, which is a set of programs that perform both pre- and post-processing, was developed with container cranes in mind. The pre-processing module is used to develop criteria, geometry, and loads. Users note how quickly wind loads can be developed using different design codes and boundary layer wind tunnel tests.

Pre-processing is the creation of the mathematical model of the crane structure (defining structural beams, and load cases). Processing is when you take the math model and solve it to get the forces in each structural member (beams and columns). Post-processing is when you take the forces in each structural member and check to see if the structural members have adequate strength and resilience. This stage also includes checking overall crane stability (tipping over) and making sure that the crane doesn't overload the dock.

In addition to container cranes, CPA has also used the software to analyze other material handling equipment, such as 500-ton-plus capacity Goliath gantry cranes, offshore floating cranes, stacker cranes, electric overhead traveling (EOT) cranes, bulk ship loaders, and unloaders. The versatile program has also been used on industrial structures and docks.

## New features

CPA—the company offers a wide variety of services, including procurement, specification, design, manufacturing review, modification, and accident investigation—has introduced a myriad of new features, including the addition of EN 13001 to the existing library of crane codes. CPA said that the standard is being updated “more regularly” than the popular European crane design code European Materials Handling Federation (FEM). Many ports in Asia and Europe are starting to adopt EN 13001 for this reason.

Richard Phillips, mechanical engineer at CPA, said: “We can—and will—highlight the multitude of features that complete the system but more holistically it is a showcase of our design and design review services. Ports and terminal operators repeatedly note the effectiveness of the software; we're not looking to generate sales, as such. With our software a crane structure can be analyzed in two to four weeks, depending on the complexity. A new crane design requires a structural analysis to assure the crane meets the purchaser's requirements as well as applicable codes and standards. Structural analysis is also required if an existing crane design is used in a new geographic region that is subject to higher wind loads or earthquake loads.”

The upgrade allows CPA to analyze a crane structure quickly without compromising on quality. This will shorten the window for the design review and verification, which ultimately cuts down on the delivery time of the crane. Crane fabricators have also hired the company directly to help them with their crane designs.

Notably, CPA has added detailed thin panel buckling output, so the user can quickly figure out which panel is over and which load case governs. Buckling will display the governing load case not only for each plate, but each panel between stiffeners. Thin panel buckling is a localized failure of a slender plate that is part of a large beam. The detailed buckling output will automatically show the user which load case is causing the buckling issue and where the thin panel buckling occurs on the beam. This allows the user to quickly optimize their design.

## Total integration

Once the pre-processing is complete, the model is loaded into SAP2000, a commercial Finite Element Analysis program. SAP2000 solves the model and will output all forces, moments, and reactions to the post-processing programs. However, SAP2000 does not support crane design codes, which led CPA to create programs that use the SAP2000 output and check the structural members to the most popular crane codes.

Phillips said: “[SAP2000] is the best analysis software for beam modeling; it has the best non-linear time history analysis routines. For this reason, we chose SAP2000 as the processing engine for our software suite.”

He reiterated that the programs for stress, buckling, and fatigue will automatically analyze every structural member and check every load case. This includes checking each load case for the wind angle that maximizes the stress at each structural member.

This new proprietary crane analysis software is compatible with a series of design codes, including those of FEM, AISC, BS5400, DIN 15018, CMAA 70, and EN 13001. It is compatible with Windows-based PCs.

For more information visit:  
[www.casperphillips.com](http://www.casperphillips.com)



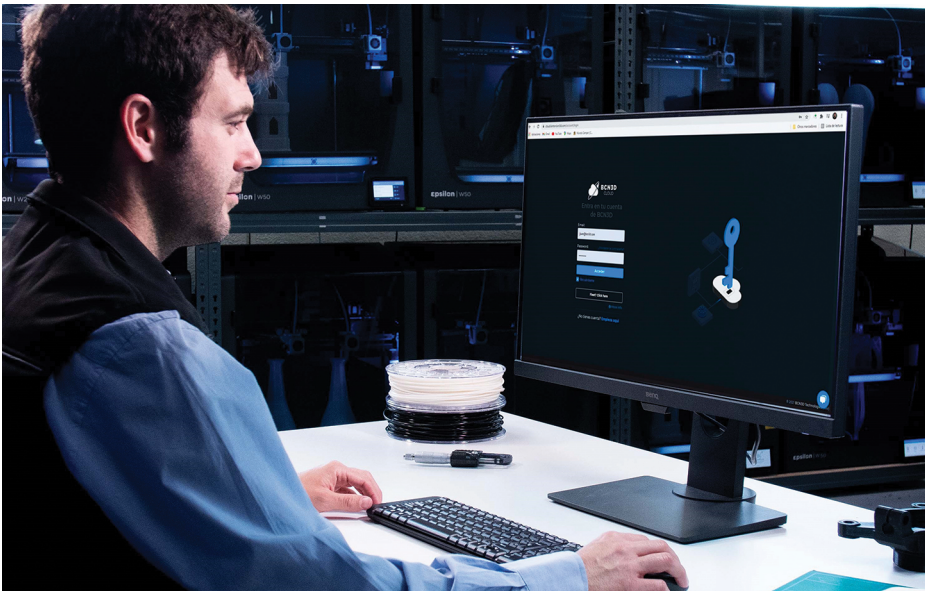
# BCN3D releases brand new Cloud for real-time 3D printing fleet management

BCN3D, a leading 3D printing solutions manufacturer, has announced a complete reinvention of its current BCN3D Cloud platform. The new web-based cloud will allow companies to scale up their additive manufacturing (AM) operations and make entire printing workflows more efficient, controlled, and easier than ever before.

a day on average. With increasing printed part volumes, more people, and more machines interacting, the workflow needs to be robust and seamless. To support those customer needs, our vision is to provide software layers that add value to the hardware, effectively closing the circle of an enterprise-level solution."

The new cloud is available now and a webinar on the new cloud is available to watch online.

2021 has been key in the development of BCN3D's software vision, with the release of the new slicer BCN3D Stratos and the addition of the integration with Teton Simulation's SmartSlice for print parameter optimisation. Alongside this, BCN3D has also worked with Autodesk to include BCN3D printers in Fusion 360, to offer users a fast-tracked printing process. The new cloud has been built based on the Astroprint IP, a 3D printing software company known for its sophisticated cloud solutions, which was acquired by BCN3D in July.



The introduction of the new software follows a number of hardware innovations at BCN3D - including the recently launched Smart Cabinet - which were developed to meet rapidly growing demand for 3D printing.

The new BCN3D Cloud centralises all aspects of remote printer and resource management into one place for the easy implementation of a systematic workflow. Bringing a completely renewed experience and interface for users, BCN3D's new platform is available under three different plans - Standard, Teams and Private.

The **BCN3D Cloud Standard** plan is included for all BCN3D customers (Epsilon Series and Sigma D25) and is ideal for driving the adoption of additive manufacturing within companies. Its main features are the digital library, queues management, organising and prioritising print jobs and clusters. These allow users to group printers according to their different characteristics or capabilities and to view statistics for real-time analysis.

The **BCN3D Cloud Teams** allows advanced organisations to administrate a departmental structure with customised roles and permissions for members. This plan also includes the Workflows feature, which enables several workflows to be created to effectively manage and control the printing process, all the way from design to the final piece. Depending on the role, some users can add files to the workflow while others are responsible for managing the printing process. The Teams plan will be available from late October onwards for a three-month probation period and will then be priced at 495€ per year (595\$/year).

The **BCN3D Cloud Private** is an on-demand plan for corporations with very specific privacy and security requirements.


Daniel Arroyo, Chief Software Officer of BCN3D, said: "The integration of AM processes is becoming more critical for BCN3D's clients because the applications are more demanding, with BCN3D machines often printing for more than 12 hours

Keeping pace with the continuously growing AM market, BCN3D now focuses on the automotive, manufacturing, and engineering sectors, which typically produce functional parts, tooling and low volume batches. The company's transition from entry-level to workbench machines started in 2019 with the release of the BCN3D Epsilon and the materials partnership with BASF Forward AM and Mitsubishi Chemical. Later in 2020, BCN3D completed the Epsilon Series by launching the Smart Cabinet which ensures filaments are consistently kept at optimal humidity levels.

Watch the webinar:  
[https://www.youtube.com/watch?v=FtkJDy\\_CluQ](https://www.youtube.com/watch?v=FtkJDy_CluQ)

For more information visit:  
<https://www.bcn3d.com>

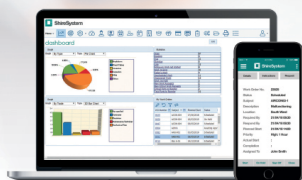
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