

# INDUSTRY UPDATE

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## Editor Recommends

# Turn your motors into Condition Monitors with Faraday Predictive kit and discover energy saving opportunities for free

Condition Monitoring of rotating equipment can have enormous benefits, avoiding unexpected breakdowns and enabling more efficient maintenance planning and scheduling, but it isn't always easy.

Portable Vibration data collectors cannot always 'see' direct into each bearing, and interpreting the readings can be complex if you have variable loads or variable speeds of your equipment – eg. when inverter-driven. And some equipment is simply inaccessible – duct-mounted fans, submersible pumps, borehole pumps, etc.

The Faraday Predictive Model-Based Voltage and Current (MBVI) systems overcome these problems by automatically analysing the subtle changes in the relationship between voltage and current drawn by your motor, to identify and discriminate between a wide range of developing faults, like bearing faults, unbalance and misalignment, vane problems in pumps and fans, loose foundations, internal rubbing, loose belt drives.

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## Metal and Modular's Auto-Brake range



Metal and Modular, the specialist in innovative safety, security and materials handling equipment, has achieved BS EN 1757-3:2002 for its Auto-Brake Trolley range. Weighing just 140kg, the Auto-Brake Load Trolley has a capacity of up to 2,000kg, making it ideal for most transportation requirements.

Meanwhile, the Auto-Brake Panel Trolley has an integral high-load ratchet strap with a load capacity of 1,000kg & is suitable for transporting a wide range of materials in an upright position. All the trolleys are fitted with all-terrain wheels and castors from world leading castor manufacturer, Bickler.

Metal and Modular's Design Director, Michael Brown, commented, "Our Auto-Brake range was designed to improve health and safety and reduce risk and we're delighted to have received BS EN 1757-3:2002 accreditation."

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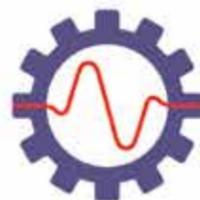
## Robust and durable swivel joints provide 360° movement



Rotaflow manufactures a range of robust and durable Swivel Joints, which are designed to provide 360° movement through a clear bore to transfer fluid under pressure without leakage from a static position to a moving point – ideal for loading arms or removing the twist in hoses.

We design and manufacture in-house and have over 30 years' experience and we specialise in resolving often unique engineering issues within the food and drink production, oil & gas sector, mining and waste management or more general process engineering. Used in all areas of industry, we solve issues where fluids needing to be moved effectively while under pressure. Single-flow and multi-port swivel joints are available in carbon steel and 316 Stainless Steel. Sizes are from ¼ inch to 40+ inch bore, with a choice of seals available for maximum compatibility.

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# TASKI unveils IntelliSpray technology for businesses tackling post-pandemic health concerns

IntelliSpray technology, newly developed by TASKI, redefines what a cleaning machine is capable of. IntelliSpray is a fully integrated solution that allows facilities to scrub floors and disinfect them in a single pass, achieving a new standard in hygiene. The ultimate cleaning machine, now with integrated disinfection.

As the world emerges from the strictest of lockdown conditions, businesses face a variety of challenges, most prominent of which is the health of workers and customers. Lingering concerns regarding cleanliness

and pathogens will elevate hygiene expectations and facilities are responsible for exceeding those expectations. IntelliSpray forms a core component of TASKI's support for businesses facing these challenges.

IntelliSpray comprises three parts. A 20 litre disinfectant tank feeds a multi-nozzle system that coats floors and vertical surfaces simultaneously with your chosen disinfectant. Emitting a fine mist of 60-micron droplets, three nozzles coat a wide-angle area at the rear of the machine while two more nozzles are side mounted for

cleaning vertical surfaces and furniture. Finally, a hand spray attachment is also incorporated, allowing operators to perform precise, on-the-spot, disinfection as required.

IntelliSpray extends the power of TASKI cleaning machines, elevating hygiene protection to a new level. The system is available on all new ride-on machines, or as an enhancement to your existing fleet.

Contact  
[www.taski.com](http://www.taski.com)



## CURTISS - WRIGHT

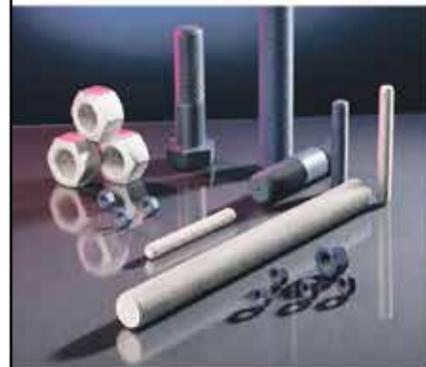
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## Herga's 6461 series



Simple in operation and easily installed in new equipment or as a retrofitted replacement, Herga's 6461 series infrared non-contact switches provide a safe, functional and cost-effective alternative to manual switches for dispensing and vending equipment as high-hygiene becomes more and more critically important. Herga has manufactured this product for several years and, tried and tested with high-reliability and widespread use in a diverse range of applications from medical laboratories to leisure facilities, this practical IR switch has a sensing range from 75 to 100mm and is available in a wide choice of materials and switching options.

Herga's 6461 is available in open collector or transistor output versions and with a low current consumption of less than 3mA, can be configured for momentary, latching or timer delay switching. An electrical rating of up to 2A at 30V AC or DC (Nominal 12V to 24V) allows an output capable of switching a suitable relay, solenoid or direct connection to the controlled equipment.

The IR sensor element is set behind a protective acrylic lens with a light source that is modulated to reduce nuisance operation due to ambient light. With an overall IP67 rating, the sensor is epoxy encapsulated in a 33mm diameter threaded housing, available in a choice of ABS or stainless steel and complete with locking nut for flexible use in normal or vandal-resistant installations. A fully-sealed front escutcheon plate, also in a choice of stainless steel or ABS with an attractive chrome-plated finish, allows the entire switch to be washed down with suitable cleaning fluids for complete hygiene protection. Temperature operating range is from -5 to +40°C.



The 6461 switch's sensitivity allows operation of the switch without any actual contact – with infrared detection of objects such as a finger or a hand at a distance of approximately 70mm. Special versions can be adapted to detect large objects such as a person or other parts of the body from distances up to 500mm. This flexibility allows far-reaching dispensing and vending tasks on high hygiene equipment for water, soap and cleansing gels etc. as well as non-contact actuation of dryers, door openers and many other devices used in medical and laboratory fields as well as public conveniences, airports and other environments – where hygienic measures are nowadays so essentially important.

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## Addressing real challenges in the electrical testing market



Metrel is one of very few companies that develops and manufactures its products at a single location in Slovenia, starting with design and ending with final assembly, quality control and calibration. From its UK office in Epsom, Surrey, Metrel UK supplies its leading range of measuring and testing equipment to customers across the country, as well as providing repair, adjustment and calibration services.

Metrel's extensive range of instruments offer innovative solutions for testing and measuring, ensuring its equipment is easy to use, intuitive and future proof. Many of Metrel's products are software based and use touchscreen technology, addressing the real needs and challenges of end users to create a range of products that will enhance the user experience.

Without a doubt, Metrel is committed to solving the issues workers face every day. "Right now lots of electricians own, and use daily, testers that are capable of storing their test results but find the feature too complicated and long winded to use, because they need to make notes about which circuit and board each relates to which location in the tester's memory," said Brendan Beaver, the UK Manager of Metrel. "They prefer to fill a copy of a certificate by hand and then make a fair copy either in their best handwriting, or by typing it up in a computerised certificate when they get home. What a waste of their time!"

Metrel understands that engineers need to be able to do their testing and save the results and notes on their tester without needing pencil and paper, so that it is ready to send to the depot or to quickly download. This kind of functionality is not available when a conventional LCD screen is the only thing available, as found on an ordinary multi-function tester.

With the introduction of dot-matrix displays from Metrel, an increasing number of users of multi-function testers like MI3152 and MI3155 are realising the advantages of being able to make notes using the touchscreen's full keyboard, eliminating the need for pencil and paper. What's more, the on-board fuse table and connection help screens allied with the pass and fail indicators to give the operator confidence to pass the results to storage.

Metrel's new memory management system is unique. Also benefiting from the dot-matrix touchscreens, it allows the operator to visualise the installation, highlighting components with a coloured icon, which makes it easier to post the results to the correct circuit without writing anything down. This simplicity is continued when the results are downloaded quickly and easily into an 18th Edition certificate via the USB port.

Metrel also offers a dedicated repair service and expert technical support, working with distributors and partners to offer solutions to any problems, to ensure its products are being used correctly and to their full potential.

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## Your experts for ultra-low NOx burners

"We believe that energy generation from fossil fuel combustion can be as efficient and clean as from sun, wind and water", that is the SAACKE vision.

In addition to the criteria of performance and reliability, keeping emission values as low as possible is important when selecting burners for industrial combustion plants. Operators must take into account the limit values prescribed by law, otherwise they risk losing their operating licence. In the latest generation of ultra-low NOx burners from burner specialist SAACKE, the flame temperature in the flame head is reduced by recirculation of exhaust gases from the combustion chamber. This cools down the flame and means that significantly less nitrogen oxides are produced compared to conventional burners. This process has no effect on the

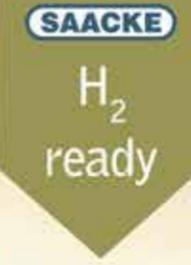
performance of the burner and the efficiency of the plant can even be increased.

SAACKE's range extends from standard gas burners in plug & play mode to highly complex yet smart combustion systems, as well as remote-capable plant management systems.

The SAACKE TEMINOX meets all the necessary criteria for a future-proof, modern combustion system with lowest emissions below 30mg/m<sup>3</sup> NOx. In both the monoblock and the duoblock versions, the TEMINOX burns a wide range of standard fuels and special gases efficiently.

To find out more, please call 023 92 333900 or email: ukadmin@saacke.com






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

# Need more accurate and repeatable flow measurement? Choose Sierra

**We are proud to announce that Sierra Instruments has been selected as our Flow Specialist Company of the Month.**

Offering high accuracy, excellent repeatability, and durability, Sierra Instruments designs and manufactures high performance thermal mass flow controllers, immersible thermal mass flow meters, vortex flow meters, and transit time ultrasonic flow meters for most gas, liquid, and steam applications. Founded in 1973 by Dr John Olin, Sierra Instruments has over 45 years of experience underpinning its services, with 150 locations in 50 countries around the world.

Sierra Instruments' QuadraTherm 640i Insertion Probe and 780i Inline meters offer unparalleled accuracy for thermal mass flow meters, coupled with a lifetime guarantee on the flow sensor. These are ideal for any gas application where high accuracy is required,

offering minimal pressure drop even when temperatures and pressures may vary. What's more, with the 640i, size changes can be made on site while commissioning or if the process needs to be upsized.



As the highest accuracy thermal mass flow meters for air/gas mass flow rate measurement on the market today, the 640i/780i achieve gas mass flow rate accuracy that was never possible before. The meters are truly an accuracy breakthrough in thermal dispersion technology, achieving extreme precision with 'percent of reading' accuracy.

For lab researchers and systems integrators/OEMs, Sierra Instruments offers the SmartTrak 100 thermal mass flow controller, a multi-gas digital MFC designed to deliver smooth, stable, accurate, and repeatable gas mass flow control. The device is unaffected by upstream gas temperature and pressure fluctuations, offering premium reliability.

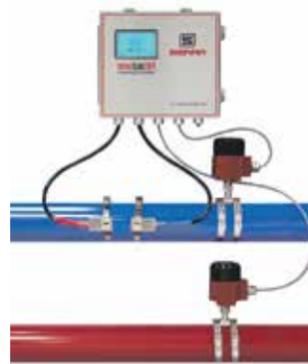
The 100 Series is the company's primary range of scientific mass flow meters and controllers. These devices are suitable for gas mixing, with complementary software available, totalisation, when



monitoring laboratory gas supply usage, and bespoke system designs.

What's more, the 241i insertion vortex flow meter is an economical solution for applications from 2" to 72" diameter pipes and larger. Volumetric or multivariable measurement is possible with a single pipe insertion point, greatly reducing installation costs. This can measure high flow rates of most liquids, gases or steam with minimal differential pressure across the instrument. This means it is ideal for steam applications, particularly when installation is required while the steam is 'flowing'.

To further the company's development, in May 2019 Sierra Instruments joined the Tasi Group of companies, one of which is Litre Meter. Litre Meter is now the sole distributor of Sierra Instruments' products in the UK. As part of this transition, Martin Rowe transferred



from Sierra to Litre Meter, and remains the UK Sales Manager for Sierra Instruments' products. Need advice or more information? Be sure to get in touch with Martin using the details below:

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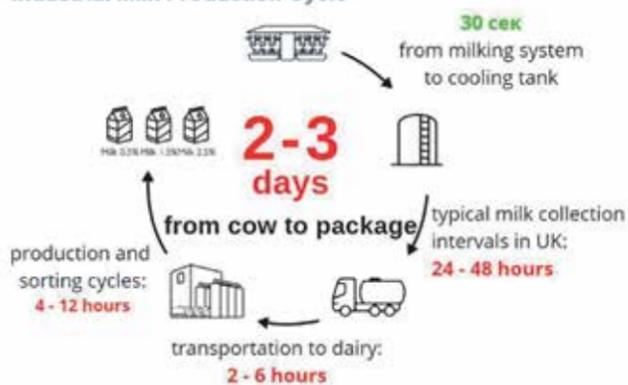


# The Future of Natural Milk

**Industry Update is proud to announce that Direct Dairy Holding BV has been selected as our Dairy Solutions Company of the Month.**

The UK is the largest drinking milk market in Europe. A typical UK consumer drinks about 40% more milk than an average European, and enjoys much fresher milk than people across the Channel. Despite this, the UK production cycle from cow to package takes two to three days (it takes about four days in the continent) because milk originates at farms and is then processed at industrial dairies.

## Industrial Milk Production Cycle



On top of this, there is also the distribution cycle. As a result, industrial milk has little in common with fresh milk straight from the cow's udder.

So, what can be done about milk freshness and authenticity when over 99% of milk in the UK is processed by industrial dairies? The solution comes when farmers process and fill milk at the farm itself. The most advanced on-farm technology, called 'direct pasteurisation', was introduced to the market just two years ago. Here's how the Direct Milk Production Cycle looks on the right.

Direct milk retains the flavour and features of fresh milk, while

maintaining 100% safety of pasteurised milk. The direct milk production cycle is about 200 times shorter than that found in industrial dairies, and the need for pre-cooling of raw milk is eradicated with on-farm production.

The first direct milk system introduced to the market was Orbiter by Lely, the Dutch leader in dairy farm equipment and management solutions. Unfortunately, the Orbiter had high capital cost and could only be integrated with Lely milking robots. On top of this, the system required a lot of manual operations for the filling, labelling, and sorting stages of production, thus driving up the operational cost of packaged milk.

Thankfully, Direct Dairy Holding BV (DDH) offers solutions that overcome the drawbacks of Lely's Orbiter. DDH has developed two direct milk systems that demonstrate the following advanced features:

- End-to-end automation from cow to packaged milk in the cool cell

## Direct Milk Production Cycle



ready for shipment to points of sale or directly to consumers in 15 minutes after milking

- Compatibility with any type of milking systems and not just with Lely milking robots like the Orbiter
- Supplied as plug-and-play systems that just need to be connected to a milk pipe from a milking system and can be easily relocated to another farm if needed
- Traceability of milk to specific cow (DirectDairy™ compatible with milking robots) or to specific milking session of a cow group (DirectFlow™ compatible with group milking systems) through variable QR codes printed on every pack of milk
- Customisation when each batch of milk can be sorted to the needs of specific customers: by milk type, cow breed, customer name, fat and protein content, etc

Direct processing of milk not only allows farmers to produce authentic new packaged milk, but also to deliver it directly to points of sale or even to specific consumers, optimising logistics processes in comparison to industrial dairies.

## Industrial and Direct Milk Distribution



This is what the future of natural milk looks like thanks to innovators like Direct Dairy Holding BV. See the details below to find out more information.

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## Obsolete Cypress Dual Port and FIFO SRAM Product Lines



Rochester Electronics has been authorised by Cypress Semiconductor to sell units of the obsolete Dual Port and FIFO SRAM product lines. The Dual Port and FIFO product line have been discontinued by Cypress under PTN18051 notice dated 1/28/2018 with a last time ship date of 1/28/2019. Rochester has taken all residual excess inventory and has arranged for Cypress to manufacture or have manufactured 201 specific part numbers with immediate effect. This Rochester partnership allows continued product availability for both Cypress and Rochester customers.

Rochester Electronics has also received the associated product design, manufacturing and test information to allow Rochester, on a case by case basis, to provide long-term continued support of the Cypress Dual Port and FIFO SRAM product lines.

Rochester Electronics is the world's largest continuous source of semiconductors – 100% Authorised by over 70 leading semiconductor manufacturers. Rochester is an original manufacturer stocking distributor, and licensed semiconductor manufacturer. Rochester is the Semiconductor Lifecycle Solution™ no other company compares to the breadth of Rochester's product selection, value-added services, and manufacturing solutions.

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Ultrasonic inspection for delamination and disconnection is also available with the Nordson Sonoscan CSAM systems, as is detailed optical inspection with the Nordson Yestech M1m and counterfeit detection with the ABI Sentry equipment.

The newly opened laboratory area also doubles as

a demonstration area and training facility for the equipment and, with plenty of room, social distancing isn't an issue. We have also set up remote connections to the systems so that demonstrations can be run from the meeting area rather than at the system itself.

If you require inspection for production, new product introduction or failure analysis, we can offer turn round times to suit, and if you would like to see how one of our systems would fit within your facility, we would be happy to arrange a demonstration.

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# Excellent packaging quality for freshly made pâté

De Spiegeleire implements SealScope™ 100% seal inspection on pâté packaging line

**R**etailers always impose higher quality requirements on suppliers of freshly packed products. When packaging food – often under modified atmospheric conditions, leaking or open packaging must be prevented to ensure preservation and food safety. That is why De Spiegeleire NV, a Belgian producer of quality pâtés, implemented the SealScope™ seal inspection system to automatically check their pâté in consumer packaging.

Founded in 1972, De Spiegeleire produces fresh, artisanal pâté preparations for butchers, catering and retail customers. As a second generation family run business, David De Spiegeleire took over from his father in 2003. The company has grown into one of the most important pâté producers in Belgium. Initially De Spiegeleire produced pâté blocks, but since 1999, slices of pâtés have also been available in a horizontal flow pack. The pâté in this consumer packaging is prepared in many variants and is sold to large European retail customers.

As an international player, De Spiegeleire considers quality of paramount importance, resulting in a large number of quality certifications, such as the IFS



certificate (International Food Standard) and the BRC certificate (British Retail Consortium), which represent the most sophisticated food standards in Europe. But the increasingly stringent requirements of customers, who are striving for a zero tolerance of defective packaging, also drive De Spiegeleire to continuously improve their quality procedures. That is why De Spiegeleire recently invested in a 100% seal inspection system for their flow-pack packaging line to eliminate open or leaking packages.

The consumer pâtés are individually packed in a resealable flow-pack under modified atmospheric conditions. This allows the products to have a longer shelf life while still preserving freshness. Leaks in the seal are very detrimental because the product is then exposed to the air which causes visually unappealing discolouration and faster spoiling. These leaks are typically caused by product or material in the seal – such as a piece of pâté or the plastic tray – or by folded packaging film. Since millions of units are produced every year, a full manual inspection is impossible and too costly. As there is still a risk that manual sample tests can deliver defective packaging, De Spiegeleire investigated a solution that automatically inspects 100% of the packaging produced.

Omori Europe, the packaging machine supplier and a



**Distance sensors on the sealing bars detect if there are product, material or folds in the sealing area**

partner of Engilico, recommended De Spiegeleire to evaluate the SealScope™ seal inspection system. After checking with other references, they were confident it was a technology they needed to adopt. This flexible packaging inspection system is based on sensors mounted on the sealing bars of the packaging machine, measuring the distance or vibration when closing the sealing bars. The measured signal is compared with a reference measurement signal of good seals. Folds or product in the seal are thus detected and further ejected from the conveyor. Because the sensors are directly integrated into the packaging machine, there is no extra floor space required and no need for special adjustments to be made to the production line. Another advantage of the non-destructive seal inspection is that if the product in the rejected packages is still intact, it can be repackaged, which leads to less overall waste.

“The choice of SealScope™ is perfectly in line with our quality policy,” says David De Spiegeleire, managing director, “Our pâté itself is authentic, but our machinery is modern and our production process is fully tailored to our customers’ high quality requirements.”

The SealScope™ system is complementary to the extensive quality controls and systems that De Spiegeleire has in place, such as weight control, metal detection and gas and sample analysis. Also the supplier of the packaging line is very impressed. He reports that to their customers, De Spiegeleire is the production site with the most advanced quality control systems.

De Spiegeleire is very satisfied with the installation and operation of the Engilico system. The system accurately



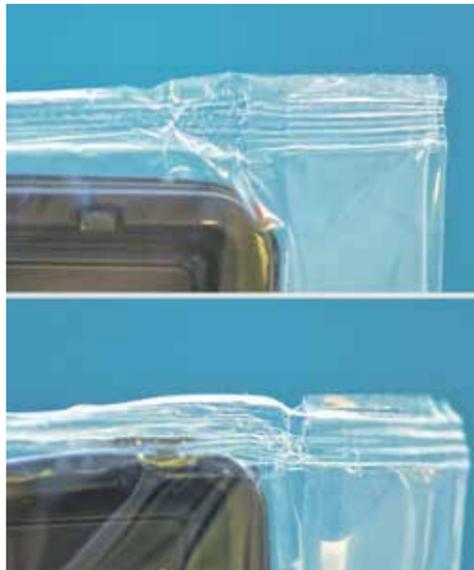
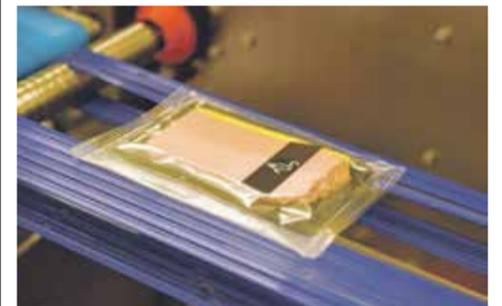
**The SealScope™ system provides 100% seal inspection and reveals trends in the packaging process**

tracks production data per variety, such as the number of good and rejected packages. Because every package is measured, one can also observe trends in the production process. This also allows timely maintenance or fine-tuning of the packaging machine, which can prevent sudden production stops or manufacture of defective packages.

“100% seal inspection of packaging is necessary to meet our customers’ quality requirements,” Jeroen De Spiegeleire from the technical service department continues. “It gives us a high level of confidence that each product is inspected individually.”

Due to the increasing demand for pâté in consumer packaging and recent expansion of their customer base, De Spiegeleire has increased both their production and inspection capacity.

**Contact**  
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**Defective packages rejected by the SealScope™ system with folds (top) and plastic tray in seal (bottom)**

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## DataLase Solutions

With increased consumer expectations, market proliferation and complex supply chains, today's packaging has to work harder than ever before – preserve and transport products, build brands, create efficiencies and, of course, delight customers. And by doing so, packaging design must balance a huge range of different criteria, including performance, protection, visual impact on shelf, and the ability to meet stringent sustainability criteria and recycling regulations.

Packaging's unique role is as much governed by trends as any other industry. Case in point is the advent of smart, intelligent or connected packaging. In a world where technology can now be integrated into everything, digitally connected packaging is creating an incredible opportunity for brands. However, for connected packaging to be more than just a novelty, it needs to offer real consumer value, while also strengthening the brand.

From an environmental perspective, one such example is the use of laser technology to print QR codes on products to provide local recycling instructions that vary according to geographical location. This solution also helps to create important reductions in carbon emissions when compared to alternative solutions such as labels and inkjet printing.

To find out more about DataLase laser coding and marking solutions, visit: [www.DataLase.com](http://www.DataLase.com)

# Safeguard your AD plant from the 5 hidden causes of CHP shutdown

Combined heat and power (CHP) gas engines are one of the most expensive pieces of equipment on an anaerobic digestion (AD) plant. They are also one of the most important, as a CHP engine unable to generate electricity means an immediate loss of income for the operator.



To identify and correct issues before they start affecting your engine's performance, we recommend that operators install live engine monitoring. The IGS-LOG software, which comes as standard with the Motortech open access control panel favoured by today's operators, enables owners to understand what constitutes normal operation for their engine and spot any downward trends or anomalies before they affect its smooth operation. Giving operators full control over their engine and ensuring the highest levels of performance, it monitors up to 25 parameters, including the following five common hidden causes of engine shutdown.

### 1. Gas pressure

Momentary drops in gas pressure, or waning gas pressure over time, can result in a hard shutdown. Many operators become used to their engine cutting out and simply restart it and carry on. But the long-term damage this causes to the engine can be irreparable. By monitoring the gas pressure and noting any drops, operators can better identify the cause of any unexpected shutdown and take preventative action to protect their CHP.

### 2. Gas quality

AD feedstocks are notoriously variable; inputs can differ both regionally and seasonally, producing biogas of varying quality. Such changes will affect an engine's performance. By monitoring the gas composition, operators can spot any corresponding trends in engine performance and alter their feedstock as necessary before their CHP becomes adversely affected.

### 3. Emissions

The ComAp IGS-LOG provides 24/7 emission analysis, enabling an operator to fine-tune their engine. It allows the operator to see if their engine is running rich or lean – a rich engine will be running hot and wasting energy, while a lean engine runs the risk of misfiring – and take the necessary steps to address any issues before they present a serious risk.

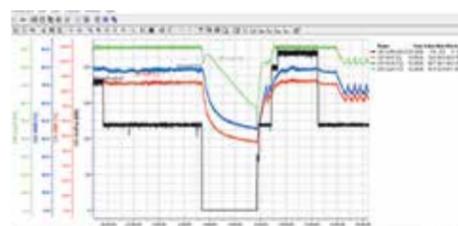
### 4. Water pressure

While an operator would certainly notice the resulting interruption to their CHP's performance, they would be unable to prove it was caused by water pressure and stop it from recurring unless the pressure was being monitored. Constant analysis of water pressure therefore helps an operator to avoid the peaks and troughs that can result in performance issues and promotes smooth and reliable operation.

### 5. Kilovolts

An increase in kilovolts indicates a deterioration in spark plug performance, as the spark has to work harder to 'jump' the gap to create the initial spark. Live monitoring will highlight a rise in kilovolts or erratic KV readings, warning the operator of a potential issue with their ignition system or spark plugs and prompting them to take pre-emptive action to protect their CHP.

Contact: James Thompson, Managing Director  
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Kingston Engineering is one of the UK's leading manufacturers of bespoke power screws. Based in Hull, the company offers a vast selection of materials and specifications designed to suit their clients' requirements.

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the manufacturing process.

Kingston Engineering's screws can be used in a range

of applications across multiple industries, including aerospace, oil and gas, nuclear energy, the chemical and medical fields. The company works closely with both suppliers and end users to provide the best purpose-built screws possible, with customers across the UK and the US.

The current directors have more than 100 years of experience between them and are continuously engaging in plans to help the company become global leaders in screw manufacturing.

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# Your guiding light for LED solutions

**“We** were established in 2009 as OCIP ENERGY Ltd,” explained Aidan Brown, Managing Director. “As we approached our 10th anniversary, and with the acceptance of LED lighting into the mainstream market, we changed our name to LED Industrial Lighting Company Ltd to better reflect the nature of the market in which we operate.”

Based in Cheltenham, LED Industrial Lighting Company Ltd operates across the UK and Europe, and numerous key clients have used its services across their European operations. As the status of LED lighting has changed, so the company has adapted its services to better address the needs of the marketplace. “The company’s role has evolved as LEDs have become more accepted,” explained



Aidan. “In the early days, it was about convincing businesses that LED was the future. Nowadays, we are effectively a specifier, assisting clients to identify and source the most appropriate product for their premises.”

Working exclusively with LED lighting, the company has a focus on the commercial and heavy industrial markets, including hazardous area environments, as well as significant experience in the niche market for obstruction lighting.

With the increase in LED lighting’s popularity, there has undoubtedly been an increase in the number of poor quality products, which have swamped the market and made it increasingly difficult to find the best and most suitable solution. Thankfully, LED Industrial Lighting Company Ltd’s extensive experience of the LED lighting sector allows it to match the most appropriate fittings to the client’s requirements, as well as guiding clients to the right products for their individual requirements, without making expensive mistakes.



Certainly, LED Industrial Lighting Company Ltd has a documented history of listening to the market and addressing its needs, something which is reflected in the company’s motto to ‘listen and deliver’. “We believe in understanding the client’s operational requirements and then developing a value proposition that addresses those needs, all within budget,” Aidan elaborated.

Of course, LED lighting is constantly evolving, but there are limitations as to where future efficiencies will be generated in the LED technology alone. “Where the real revolution is occurring is in the controls for these lights,” explained Aidan. “LED Industrial Lighting Company Ltd is able to offer the market leading remote monitoring platform, which allows a user to monitor and manage their lighting infrastructure from their own laptop, giving real-time data on what is happening within their office, building or entire estate. We can monitor a

suite of parameters from energy usage to the status of the batteries in the emergency fittings. This offers potentially huge maintenance savings, and the system will automatically run test and report systems to ensure full regulatory compliance.”

With an outstanding reputation for quality, value and customer service, there is no doubt that the future looks bright for LED Industrial Lighting Company Ltd, a company which clearly possesses the drive and determination to continue its innovative work. “2019 was a challenging year for us as a business. Specifically, I was diagnosed with cancer in



March and underwent chemotherapy for the best part of a year. During that time, I continued to work and am very grateful for the support of our existing clients, as well as the patience of the new ones. Having had the all-clear at the end of 2019, I am keen to drive the business forward and make up for lost time.”

If you would like to find out more information, head to the website or get in touch using the contact details below.

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# Reload – the re-usable silicone cartridge – being green and saving money!



**A** key issue in building conditions nowadays is the issue of site waste. Not only does it impact heavily on the environment which is reflected in your credentials, the sheer cost associated with waste disposal is phenomenal. Site Waste Management Plans are becoming statutory practice for building projects over £300,000, recording the types of waste and the volume of waste generated per job, which you as construction workers will be responsible for.

The need for Site Waste Control is becoming more important because:

- ▼ **LANDFILL AVAILABILITY IS GETTING LOW** – Over the next decade landfill sites will become scarce due to over filling. This means waste will have to travel further for disposal at a premium cost.

- ▼ **GROWING WASTE DISPOSAL COSTS** – Landfill tax is on the increase every year. We are currently paying in excess of £91 per tonne of waste, so weight is key when disposing of products.

- ▼ **NON-DEGRADABLE MATERIALS** – It has been estimated that over 100 million plastic sealant cartridges are dumped into landfill sites every year – that equals 6000 tonnes in weight.

- ▼ **IMPACT ON THE ENVIRONMENT** – With environmental policies being constantly improved and more stringent, both the Government and industry in general have targeted themselves with reducing the volume of construction waste each year.

Bond It's responsibility, as one of the UK's fastest growing manufacturers of sealants, adhesives and building chemicals, is to contribute where



possible in making this achievable by introducing innovative, environmentally-friendly, sustainable packaging! By introducing the new re-usable Reload sealant cartridge system, Bond It feels this is the answer to the landfill issue. It cuts down on waste, it cuts down on time, and it cuts down on costs!

By encasing a choice of silicones and sealants in a foil sausage, this simply inserts into a plastic (re-usable) cartridge. Snip the end with scissors, fit the nozzle and cut as with standard cartridges and away you go. Once the sealant is used the spent slug is easily removed and disposed of. Select your next sausage, reload and repeat the process. On waste disposal, when empty, the Reload slug is approx 8 times less in volume than a standard sealant cartridge and over 60% lighter. Less bulk and less weight! Currently available in the Reload format are 3 of Bond It's most popular sellers

Multi-Mate, WP100 and Frame-Mate offered in EU3 foil sausages.

This is also a more cost-effective option to consider if the Government pass legislation in 2022 to tax imported plastic packaging that does not contain at least 30% recycled content. With current cartridges being produced from 100% virgin plastic, there will be a cost increase that inevitably will be passed on to end users of these products. Switching to greener systems, like the Reload concept, will reap commercial benefits as well as tackling the increasing issue of single use plastic and its devastating effect on the planet.

For more information on Bond It, contact our Sales Team on 01422 315300 or visit: [www.bond-it.co.uk](http://www.bond-it.co.uk)



# LOAD, SEAL, REPEAT

It's as simple as that. Load a high quality silicone sausage into the re-usable cartridge and apply using a standard sealant gun.

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Visit [www.bond-it.co.uk](http://www.bond-it.co.uk) for details



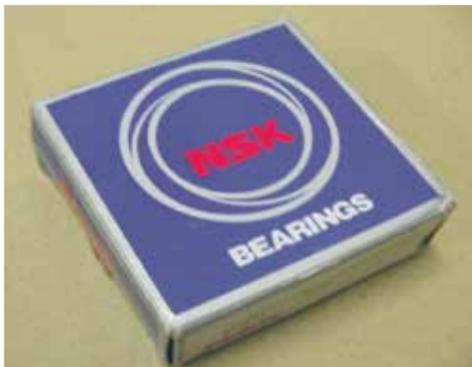
Unit G16, River Bank Way, Lowfields Business Park, Elland, West Yorkshire HX5 9DN  
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# Counterfeit bearings – know the risks

**C**ounterfeit bearings are a global issue, with all markets susceptible to the risks of buying these low-quality products. As a leading manufacturer of premium-quality bearings, NSK is focused on eradicating this issue, one that puts safety at risk and ultimately leads to users experiencing reduced reliability and higher lifecycle costs. The relentless drive to remain competitive and profitable has created a culture where too many companies are forced into making purchase decisions based solely on unit price, ignoring other factors such as total cost of ownership (TCO) and performance. However, shopping around for irresistible bargains often comes at a far higher price, with many purchasing and engineering teams unaware of the risks and dangers involved from adopting such a strategy.

The end result is usually the inadvertent acquisition and arrival of counterfeit bearings. Although the price may have been cheaper, in reality the overall cost is likely to be considerably greater. For a start, these poor-quality fakes fail more frequently when put into service, increasing maintenance and downtime costs. It should also be noted that these costs invariably far exceed the



Highlighting the detail of a counterfeit NSK bearing box



Fake NSK bearings in their packaging found at the production facility of a counterfeiter

amount saved on the initial purchase.

#### The origins of counterfeits

Counterfeit bearings tend to originate from uncontrolled sources in countries with low-cost economies, where disingenuous organisations use lower-grade materials that are usually processed on ageing machines operated by low-paid, unskilled operatives. The bearings, which are often poorly handled and stored, are then placed in boxes designed to resemble the packaging of the manufacturer being replicated, completely disguising the inauthenticity of the product to cheat both purchasers and users.

Inconsistent quality is assured when buying bogus bearings. Such bearings may last long enough to pass pre-production trials, but their subsequent premature failure in the field will cast uncertainty over the performance of the machine, system or vehicle to which they are fitted. This eventuality can compromise brand reputation and damage sales.

Many companies finding themselves in this situation will call for help, only to discover a complete absence of technical support or advice. Typically, counterfeiters will not have local application engineers available to help with questions, nor will there be any modern, well-equipped technology centres to provide test data, product defect assessments or failure analysis.

#### Material matters

The materials used to produce fake bearings are not of the quality provided by OEM suppliers such as NSK, which leverages decades of experience in materials science to ensure its bearings exceed the demands of modern industrial applications. Steel quality is the major factor in bearing reliability, where a difference in operating life of up to 20 times (between genuine and counterfeit) is not uncommon.

The fatigue life of alloyed bearing steels such as 100 Cr6 (or SUJ2 in the Japanese standard) depends principally on the inclusion content. Oxide or non-metallic inclusions, in particular, promote negative effects under the raceway surface. As an example, it is known that aluminium oxide inclusions, which are formed via oxidation during the melt, can lead to a major reduction in bearing fatigue life. This effect is created because aluminium oxide inclusions are relatively hard and can break up when steel undergoes processes such as forging. During break-up, inclusions shrink and weaken the microstructure. Working with a leading steel manufacturer, NSK has developed materials like Z Steel, EP Steel and BNEQARTET to



A counterfeit NSK bearing removed from its packaging

prevent this negative effect. The company also uses special melting processes that reduce non-metallic content and prolong fatigue life.

With counterfeits, heat treatment is another factor that is often absent or poorly applied, compromising the specific characteristics of steels and, consequently, bearings. Materials such as NSK's SHX steel are subjected to a specific heat treatment that is particularly resistant to wear at high operating temperatures. Bearings of this type are required not just when heat is present as an inherent part of the process, but in applications such as machine tools, where fast spindle speeds generate high temperatures in the drive components. During development, the characteristics of SHX steel were proven by means of comprehensive wear resistance and surface fatigue life tests. Counterfeit manufacturers do not offer this kind of product development and analysis.

#### The fight continues

Although NSK continues to invest extensively in efforts to identify and prosecute counterfeiters, the advice is clear: when purchasing NSK products, customers should exercise due caution. Only buy from trusted sources such as Authorised NSK Distributors.

Additional information about the fake bearings industry can be found at: [www.stopfakebearings.com](http://www.stopfakebearings.com)

[www.nsk-europe.com](http://www.nsk-europe.com)



Close-up of a counterfeit bearing

# Smart Position Transmitters for enhanced plant operational efficiency

**M**aximum process reliability and constant product quality are maxims in the food industry – whether in the manufacture of beverages, sweets and dairy or in meat processing. The increased usage of automation within the Process Industries has had a significant effect on the nature of valves supplied into the sector. Whilst the functions of the valve and valve actuator are fundamentally the same regardless of whether the automated valve is being used for control (modulating) or for On/Off operation, the equipment that interfaces between the control room and the valve differ depending on the valve function.

Control valves will typically employ a Positioner to initiate a valve movement and a Position Transmitter to confirm valve position matches required position. On the other hand, an On/Off Valve will connect using a Solenoid Valve to allow a change in a digital output status in the PCS to operate the valve and a Limit Switch Box to confirm the valve is in the required position.

In contrast, the Position Transmitter on a Control Valve has been largely overlooked and hence many control valves suffer performance issues solely because of the



limitations of the position feedback mechanism and can have a significant effect on both plant productivity and plant safety.

The vast majority of Position Transmitter products currently available utilise a potentiometer, which have a number of limitations when used on valve applications. Potentiometers are susceptible to vibration, wear and liable to contamination from foreign particles such as dust, sand or water.

These issues, along with those encountered with other transmitter technologies are often not appreciated by the Plant Operator until the product is already in service and performance is not as expected.

A few specialist companies providing Valve Position Monitoring solutions, such as Imtex Controls Limited, have recognised both the potential benefits to Plant Operators for using IVPTs on valves but also the severe limitations of the products

currently available. For this reason, new 'smart' solutions are now being offered that solve the traditional issues of IVPTs and enable plant operators to maximise their returns from these devices.

The new generation of smart IVPTs employ more robust feedback mechanisms. For example, the Imtex NC transmitter range utilises inductive sensor technology in non-contact, solid state feedback devices that are both highly accurate and largely impervious to challenges presented by the environment in which they operate.

Traditional IVPTs are often tricky to calibrate, requiring the use of tools or a laptop to complete the setting of zero and span. Smart IVPTs simplify the calibration by allowing the user to calibrate through push buttons built into the transmitter unit. In addition, where the smart IVPT is equipped with the ability to interface with a digital protocol such as HART, the device might also be calibrated remotely.



When mounting a rotary transmitter on a linear valve, a non-linear output is often generated due to a linear to rotary conversion kit being used. Smart IVPTs have recognised

this issue and provide the means to adjust the output from the device. For example, the Imtex NC transmitter is available with the ability to set up to 20 intermediate feedback points to linearise the output.

Another benefit of Smart IVPTs is that they put intelligence in the field device. The ST-4312 NC Transmitter from Imtex Controls analyses the stroking speed of the valve every time it moves and compares this information with a stored 'as new' profile of the valve. The device is then capable of sending a warning signal via the HART communication interface, flagging when the valve has started to slow down by a user defined amount.

With the ever increasing need to improve plant efficiency and safety, Independent Valve Position Transmitters provide a simple and cost effective method to deliver these demands. By employing the latest generation of 'smart' IVPTs, plant operators are able to dramatically improve their efficiency and safety by gathering information on valves that permits targeted preventative maintenance.

Find out more at: [www.imtex-controls.com](http://www.imtex-controls.com) or call us on: 08700 340002.



# Monitoring Valve Health through IIoT

by Imtex Controls

**As Industry begins to explore the potential benefits of embracing plant level digitisation, the opportunity to significantly increase efficiency through effective condition monitoring of equipment is clear. With the 1,000s of valves typically used on any plant being one of the primary causes for unscheduled production downtime, huge potential savings can be realised through effective monitoring of their performance.**

Most plants already have one form of valve condition monitoring device installed, namely the smart valve positioner on control valves. However, few utilise or even realise the diagnostic capabilities of these instruments, and, even where plants have tried to use positioners for condition monitoring, operational and knowledge limitations has only afforded minimal benefits. Where automation and instrumentation requirements are relatively low, as is the case with on/off valves that do not require the control functionality of a valve positioner, it can be difficult to justify the time and money involved with installing a smart positioner to provide condition monitoring information. In addition, fitting a smart positioner to an automated on/off valve introduces additional operational issues such as compromised stroking times and increased potential failure modes.

A number of companies have tried to develop bespoke systems for on/off valve applications but they can present the end user with other operational, financial and/or functional implementation issues. They are generally more costly than traditional feedback systems, can require installation of



new wiring and hardware and can have software integration issues. Operationally, they will typically require site personnel to 'harvest' data and trained personnel to perform data review. These tasks will often be overlooked or performed un-systematically, resulting in the potential benefits of the system used to not be fully realised.

Imagine instead a cost effective system that enables 'real time' reports identifying which valves need attention, to be delivered directly to your inbox or smartphone.

## Condition Monitoring Solution for Automated On/Off Valves – A Wish list

When asked what a condition monitoring solution for an automated on/off valve should look like, most plant operators have common desires. These are:

- ▼ **The system should be simple to install** – This should apply to both new installations and, importantly for retrofit applications as there are vast swathes of valves already installed that would benefit from condition monitoring
- ▼ **The system should have no impact on Plant Control** – Any condition monitoring system should not have the potential to compromise safe plant control or operation, preferably working in parallel with DCS/PCS operations
- ▼ **The system should not require additional wiring** – For retrofit applications, any equipment installed for condition monitoring should not require additional wiring to enable it to operate. Installing new wiring infrastructure is very complicated and expensive and would make the case for fitting a system difficult to justify
- ▼ **The system should not require additional software within the Process Control Environment** – Similar to wiring, introducing additional software into the process control environment can be difficult. Not only can software integration be challenging and expensive, but there is also the potential for security issues to arise which could have disastrous effects
- ▼ **The system should be fully automated** – Plant operations teams are busy people, and tasking them with additional work, such as collecting data from valves, is not desirable. As such, any condition monitoring system should be capable of harvesting data automatically and sending it



for analysis without the requirement for plant personnel to be involved

- ▼ **The system should be an extremely cost-effective solution** – In an ever more competitive economic environment, pressures on capital budgets are high. Therefore, any condition monitoring solution must be able to demonstrate a clear financial case. This means keeping the additional pressure on capital project budgets to the absolute minimum whilst providing the operational cost benefits that condition monitoring offers.

## Introducing a REAL IIoT Valve Diagnostic Monitoring Solution

Imtex Controls, a valve automation and communication company based in the UK, has recently introduced a valve condition monitoring solution targeted at the on/off valve market that addresses the implementation and operational demands that end users have. The technology, called Valvescan Diagnostic and Monitoring System (VDMS), has been designed to provide clear condition data for automated on/off valves without tasking the plant level operations team with any additional work plan requirements or creating any potential to compromise plant safety.



The two core elements of VDMS are:

- ▼ **Valvescan Field Mounted Device (VFMD)** – Mounted on the automated valve in the same way as a traditional limit switchbox, the field mounted device gathers data from every valve operation and transmits this data via a cellular network to the cloud. The VFMD is purely a datalogger – it does not have control capability – and is powered using existing wiring infrastructure to the valve. The datalogging and transmittal within the VFMD is done in parallel with the Plant Control System so that plant operations run exactly as they did previously
- ▼ **ValveHealth Diagnostic Application** – ValveHealth is a cloud based application that receives data from the VFMD via the cellular network and analyses it automatically. The results of this analysis can be made available to authorised users in a web portal or shared with a wider plant condition monitoring platform as desired. Alerts can also be configured and pushed out to the people that need to know, whether that be key plant personnel or contracted valve service providers

VDMS can be deployed in both green field and brown field applications with minimal additional infrastructure requirements.

By comparing current performance signatures with historic 'as new' data, the system provides an assessment of the current health of the automated valve assembly with the goal of predicting a 'time to failure' value for the valve. Maintenance and pro-active interventions can then be scheduled in advance of any issues.



Find out more at: [www.imtex-controls.com](http://www.imtex-controls.com) or call us on: 08700 340002.



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## RK Rose+Krieger

RK Rose+Krieger (part of the international Phoenix Mecano group of companies) has been manufacturing components for automation and machine building for over 40 years. Our extensive range of products in the fields of linear adjustment, profile technology, connecting and module technology are renowned and respected for their reliability and performance.

Linear products are used in almost every single area of automation and machine engineering. From simple adjustments that may be seldom right up to highly complex, highly precise and highly dynamic multi-axis systems. Every task is different and every task requires a technically sophisticated and cost-effective solution.

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## Industrial safety solutions from Foremost Electronics

**Components for industrial and construction equipment and services**

Foremost Electronics, the engineering-led Essex based importer and specialist distributor of electromechanical components, offers a wide range of safety solutions for industrial and construction equipment and services.

Emergency stop switches are required in many industrial and process control applications, including alarms, emergency equipment and vehicle shutdown and exit access. Foremost supplies a wide range of rugged, high reliability emergency stop switches from the IDEC e-stop series.

IDEC's high reliability range of emergency stop switches has patented 3rd generation safety technology and provides optimal safety by conforming to international approvals: UL, TUV, ATEX, CE, and CCC.

9 different series of emergency

stop switches offer an exceptional range and include a very wide variety of options including: 3 plunger diameters (30, 40 and 60mm), 3 plunger colours (yellow, red and grey), the availability of illuminated versions, 16, 22 and 30mm panel cut-outs, several methods of connection, 4 types of reset functions: twist, pull, both (when required) or key, reduced size and offer greater flexibility in the number of contacts, from 1 to 4 with normally open (NO) or normally closed (NC) variants.

**To see the IDEC e-stop product ranges available from Foremost, please visit: [www.4most.co.uk](http://www.4most.co.uk) or call +44 (0)1371 811171 or email: [sales@4most.co.uk](mailto:sales@4most.co.uk)**



# Recycling plant saves over €50,000 per year with NSK mounted bearings

**A** recycling plant that was experiencing regular failures of mounted bearings on the conveyor of an optical sorting machine is enjoying major gains following the switch to NSK SNN series plummer blocks fitted with NSKHPS spherical roller bearings. Thanks to the reduction in replacement bearing costs, breakdowns and maintenance, the facility is saving €51,174 per annum. The problem at the recycling plant came to light soon after installation. Within just three months, five bearing failures had been recorded. Keen to resolve the issue, which was proving expensive in repairs and downtime, the facility's management team invited NSK to perform a comprehensive application review.

As part of its AIP Added Value Programme, NSK's team of specialist engineers soon determined that vibration and lubrication issues were causing the bearing to fail prematurely. Specifically, vibration in the application was causing the grub screws to loosen, resulting in the shaft spinning in the bearing's inner ring. It was also noted that the type of mounted unit being used had no grease escape path, leading to excessive grease build up and high heat levels.

Following the observations, NSK recommended using



The optical sorter conveyor at the recycling plant was suffering 10 breakdowns a year due to failed bearings

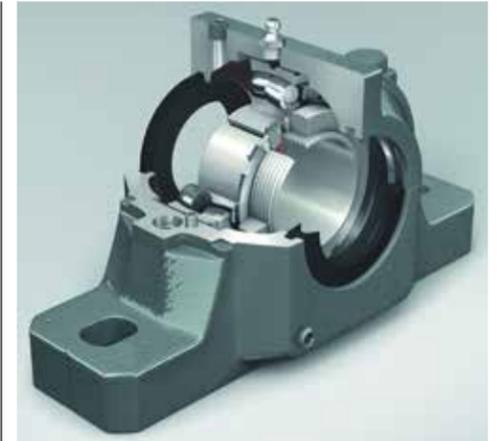
NSKHPS (High Performance Standard) spherical roller bearings mounted on adapter sleeves in an SNN plummer block housing. The adapter sleeve locking method means that the bearing cannot become loose on the shaft, even with vibration present. Furthermore, NSK SNN plummer blocks are provided with a grease escape hole as standard, meaning excessive grease accumulation is avoided. No bearing failures have been recorded since the NSK solution was implemented.

With its modular SNN series, NSK offers plummer

blocks that have been developed for use in unfavourable application conditions, such as conveyors for the recycling, quarrying, steelmaking and agriculture industries. Importantly, the components are easy to install thanks to design details like solid housing corners that provide an optimal hold for positioning pins, and a centre mark for simple alignment. Maintenance is also straightforward due to the precision-engineered split housing that ensures easy bearing replacement. Re-lubrication is possible via two boreholes.

Further benefits of SNN series plummer blocks include high rigidity (to minimise deformation of the bearing seat), good heat dissipation and a comprehensive range of sealing arrangements to match all needs. In addition, the same housing can be used with double row spherical roller bearings or double row self-aligning ball bearings. Mounted units in the SNN series can be supplied for shaft diameters from 20 to 140mm.

The NSKHPS spherical roller bearings used at the recycling plant are suitable for high speeds and loads. Available with a steel or brass cage, product features include optimum raceway design and surface finishing, as well as temperature stability up to 200°C. Importantly, NSKHPS bearings offer



NSK's SNN series plummer block is designed for use in challenging applications

25% higher dynamic load rating, up to 20% higher limiting speed and up to twice the operating life.

In combination with the SNN series plummer blocks, NSKHPS bearings have enabled the recycling plant to go from 10 breakdowns a year to none.

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# Digital documentation for the commissioning and maintenance of metallurgical plants: When software fires the imagination

by Christian Stolz, Account Manager Plant Solutions at RÖSBERG Engineering GmbH

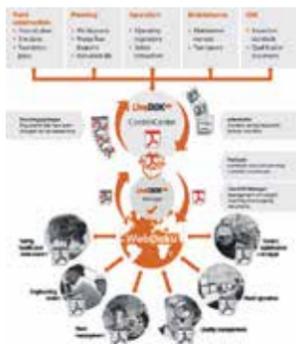
**Endless files of paperwork are still a familiar sight to those who operate or commission plants. However, it is well-nigh impossible to administer or set up complex plants while relying solely on paper documentation. Redlining notes made under stress on the building site – for instance on a printed-out circuit diagram – are supposed to be deciphered months later by an employee in the engineering department for inclusion in the final plant documentation. No-one knows who originally made the note, so it is generally more or less impossible to clear up an uncertainty of this kind. This is the type of scenario in which the advantages of digital documentation become fully apparent.**



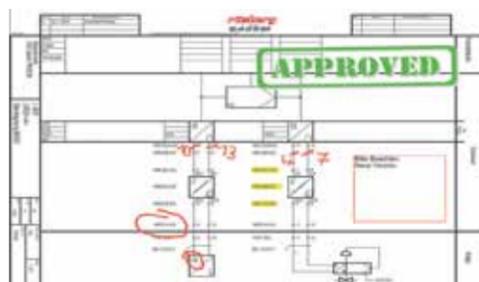
The SMS group (see Company Text Box 1) is a German system supplier of machines and plants. The enterprise covers the whole spectrum of the metallurgical process chain, including electrical systems, automation and service (see Fig. 1). Especially with a view to Industry 4.0, the group – whose history goes back almost 150 years – has set itself the task of repeatedly analysing processes in detail, optimising their structure and increasing their degree of automation. In this context they address the question of how they could 'digitalise' the commissioning of plants. The digitalisation of technical plant documentation offers new possibilities for increasing efficiency, and is a key element on the way to the 'Learning Steel Plant', the enterprise's vision for Industry 4.0 and digitalisation. They found suitable software in LiveDOK NG (see Fig. 2) by the Karlsruhe-based company Rösberg GmbH (see Company Text Box 2). Today, the software is used not only for commissioning at construction sites, but also internally for the group's own maintenance.

## A straightforward approach to digital documentation

The SMS group had already developed its own Process Control Centre for the structuring and automation of processes. Now they were looking for a redlining tool, i.e. a software program that enables changes to be made to documentation on a PC, notebook or mobile device similarly to making redlining alterations on paper – because during commissioning, departures from the original planning have to be made repeatedly. Here transparent documentation is essential for future operating safety.



**Fig. 2 – LiveDOK NG converts documents from more than 200 different trade-specific file formats in the areas of CAD, Office and multimedia into PDF format and makes them available to the user as digital documentation (Copyright: Rösberg)**



**Fig. 3 – Redlining: Changes can be made digitally just like using pen and paper. Who made what changes, and when, is automatically recorded. Thanks to the use of a keyboard there is no more puzzling over illegible handwritten notes (Copyright: Rösberg)**

## Company Text Box 1: SMS group

The SMS group GmbH is a globally operating system supplier, covering the whole spectrum of the metallurgical value chain from plant and machines to electrical systems and automation, to services for the metallurgical sector. The enterprise specialises in integrated solutions for pig iron production, submerged arc reduction furnaces, steel works, continuous casting technology for long and flat products, hot flat rolling mills, cold rolling mills, conveyor systems, thermal process technology, aluminium rolling mills, pipe plants, section mills, forging technology, non-ferrous metal processing plants and thermal technology. The Germany-based enterprise, which has been family managed for four generations, can look back on a corporate history of nearly 150 years and is present at numerous locations throughout the world, enabling it to react fast and unbureaucratically to customers' inquiries.

For the digital documentation, LiveDOK NG converts documents from more than 200 different trade-specific file formats in the areas of CAD, Office & multimedia, into PDF format. These PDF documents are then used for all the subsequent work, so no special programs or licenses are required to view or change the documentation. Thanks to a clever indexing system the whole documentation can be searched with a 'Google'-like search syntax in a very short time. The document structuring & displays can be adapted to suit individual needs. A broad palette of redlining functions is available for making various changes directly in documents (see Fig. 3).

## Software improves understanding of the whole process

Speaking of the introduction of the documentation software, Artur Schindler (see Fig. 4), System Integrator with the SMS group, says: "We did of course look at various solutions. Many of them were just too elaborate for us, they focused on maintenance or worked with virtual reality to simulate processes. But we were looking for software that would enable us to arrive at a productive solution quickly, without involving a lot of time & resources. The qualities of LiveDOK convinced us that it was right for digital documentation at the construction site." Thus shortly after the preliminary meetings a pilot project was set up. "Here, and during the whole of our cooperation, Rösberg reacted fast and flexibly to our requirements, and looked for constructive solutions for our individual needs," Schindler comments with pleasure.

## Company Text Box 2: Rösberg Engineering GmbH

Rösberg Engineering GmbH, founded in Karlsruhe in 1962, offers tailored automation solutions created by around 100 employees working at five locations in Germany and China, for internationally active enterprises in the process industry.

Today RÖSBERG is an internationally successful automation specialist and developer of software solutions. Its scope includes basic and detail engineering for the automation of process and production plants as well as the configuration, delivery and commissioning of distributed control systems. The enterprise also has extensive project planning and user experience in the implementation of safety-related controls, is an expert in functional safety, and offers sector-specific software solutions in the area of information technology.

The I&C-CAE system ProDOK has enjoyed international success for more than 30 years now. Under the name of Plant Solutions the new system generation ProDOK NG, the digital plant documentation system LiveDOK NG – with the app LiveDOK.web – and the Plant Assist Manager (PAM) support production plants throughout their operational life, from planning, construction, commissioning, modernisation and expansion, through to decommissioning.



**Fig. 1 – The SMS group offers integrated solutions for the whole spectrum of the metallurgical process chain, from machines and plants, including electrical systems and automation, to service. Especially with a view to Industry 4.0, the group has set itself the task of repeatedly analysing processes in detail, optimising their structure and increasing their degree of automation (Copyright: SMS group)**

Before LiveDOK was introduced, only paper documentation was used at the construction site. After commissioning these papers would be handed over to the engineering department, where all the annotations on the documents had to be laboriously deciphered. There was no way of finding out who had made the annotations, so any discrepancies that arose could not be cleared up by checking back. An additional complication: the teams on construction sites are always changing. Thus a transparent transfer of information is difficult. The digital solution automatically records who has made changes, and when, and all the information is available straight away. Schindler adds, "The software has also made our



**Fig. 4 – Artur Schindler, System Integrator with the SMS group, says, "For us, LiveDOK was the best tool to achieve a productive solution for digital documentation, fast and with a minimal investment of resources." (Copyright: SMS group)**

colleagues at the construction site aware that the information they enter has to be further processed. This understanding has made their annotations more thorough and detailed. Thanks to the fact that a keyboard can be used, illegible handwritten notes belong to the past."

## Discovery as a side effect: maintenance of house technology

While Schindler and his coworkers were introducing the digital documentation software at the building site, his colleague at the Hilchenbach location responsible for the maintenance of house technology was making a start on digitising the existing documents relevant to that area. His dream was to assign QR codes to the individual trades, and create an interface between the trades and the digital documentation. Here, too, LiveDOK proved to be an appropriate solution. Now the enterprise is also using the digital documentation system for the maintenance of its electrical switch control, heating and extinguishing systems. By scanning the code, maintenance workers can then access the relevant documentation directly, and ideally can even access the necessary work orders. When components

are replaced, the maintenance team can note down the changes in the digital documentation, directly on site.

## LiveDOK on mobile devices

Selecting the right hardware requires some experience. In the meantime laptops are increasingly being used at the construction site. Depending on the application concerned, the performance capability of tablets has not always proved sufficient, and the commissioning engineer does not necessarily wish to carry multiple electronic devices around with him.

However, tablets are definitely suitable wherever the documentation only needs to be viewed or minor changes noted. Sometimes it is very practical to have the complete documentation available everywhere on a cell phone – an important argument for using LiveDOK.web with house technology systems. Of course in all these situations the security of the highly sensitive data plays an important role. The web-based add-on for the documentation tool LiveDOK NG can be used on various different end devices and transmits document changes made on-site directly to a central online server.

The current information is then available to all users. Users do not have to install any software to use the web application – they just need an internet browser on the relevant end device. LiveDOK.web has a responsive screen designed for touch control and it functions independently of any specific operating system, thus it can be used equally well on Windows, Android or iOS devices. Like the desktop solution, the mobile version supports redlining functions adapted to the browser.

## Positively received by users

Meanwhile the SMS group has used the digital documentation system in 20 construction site projects. The reception by users is very positive. Schindler is impressed by how intuitive the operation of the system is. At the beginning of the project three user groups were defined, of these two are now mainly relevant. "The group that receives the most comprehensive training learns in one day all the functions that are important for them as Generator Managers," says Schindler. "For Redlining Managers we only need one hour of training, including answering their questions. Then they can start working productively. The training focuses more on understanding the process as a whole than on the use of the available redlining palette."

Beside all these benefits, the digital solution has an additional advantage: plant constructors obtain the final plant documentation – always a part of the project – much sooner, and therefore get paid sooner. This means that acquiring the software often pays off financially during the first project. With the SMS group, the flexibility and simplicity of use of the digital documentation tool certainly fired their imagination. It is exciting to contemplate what other applications may be found for the tool in future.

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