



SUSTAINABILITY TODAY

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5 smart ways to increase engine efficiency on AD plants

The UK's anaerobic digestion (AD) industry has experienced rapid growth over the past 10 years, with a total of 648 plants now in operation (Anaerobic Digestion and Bioreources Association (ADBA), May 2019). Despite the recent increase in biomethane facilities, most of the biogas produced from AD is used to generate electricity and heat, making the combined heat and power (CHP) engines that convert biogas into usable energy a vital piece of equipment. But with many of these engines now at least five years old, what is the impact when they fail or underperform? And is there any alternative to either costly engine replacements or expensive service contracts?

According to James Thompson, Managing Director of Gen-C, an independent CHP parts and service provider, the following five smart upgrades can transform any gas engine into a more efficient and profitable piece of kit...

1. Install an open-access control panel

Many service providers use a 'closed' control panel as a means to coerce the owner into a restrictive service contract. This means that you are potentially looking at your engine being down for days whenever there's a



Take pre-emptive action and schedule an engine upgrade to coincide with planned maintenance

problem while you wait for the service provider to despatch an engineer to your site, often at an additional cost to you.

By upgrading to an intelligent, open access control panel, an operator



Open access control panels give AD operators full control over their own engine

can remotely take control of their own engine via their laptop, phone or tablet; instantly assess how their engine is performing; control their engine's running parameters, adjusting them to match the biogas composition; and restart their engine themselves within seconds – without even needing to be on site.

2. Fit a flexible fuel mixer

If an engine runs too lean it can backfire, resulting in exhaust damage, vibrations and instability, and causing parts to wear out more quickly. If it runs too rich, then too much fuel will be used, the engine can overheat, and there is a risk of parts burning out.

A flexible and fast-acting mixer enables an engine to handle variations in gas volumes and composition. This is especially important for biogas plants treating food waste, as this is a constantly changing product. At Gen-C, our air/gas mixers comprise a range of flow bodies to suit every feedstock type, based on a plant's individual gas composition. If the composition alters significantly, we can change the flow body as required, ensuring the perfect fuel mix every time.



AD operators can increase their engine efficiency with some simple steps

3. Use an ignition controller with pulse technology

If your engine shudders during the ignition phase, replacing the controller with one using pulse technology will deliver more reliable ignition and prolong the life of your equipment. We supply Motortech ignition controllers, the only type that uses pulse technology. This creates thousands of tiny pulses, the intensity and duration of which can be programmed according to the plant's demands, and which will remain the same throughout the lifetime of the ignition controller.

4. Switch to a smart knocking control system

A 'knocking' sound usually signals that the gas is igniting too early. A sophisticated, intelligent knocking control system can detect this and automatically alter the ignition timing point. If knocking still occurs, it will then reduce the load of the engine or even shut it down, preventing catastrophic engine failure.

5. Specify a high temperature speed control

The throttle actuator responsible for speed control is usually located close to the intercooler, a part of the engine which is particularly hot. Proximity to a heat source can cause this component to deteriorate more

rapidly, often leading to poor performance or failure. To counteract this, we supply specialist high-temperature throttle actuators, which help to prolong operational life. They also comprise an integrated throttle body which contains fewer moving parts by being directly connected to the throttle. Not only does this make for more accurate control of speed, it also incurs less wear and tear.

Take pre-emptive action

Every day that an AD plant isn't generating electricity is a day it's losing money, so don't wait for your engine to fail before taking action. By scheduling an engine upgrade to coincide with any planned maintenance shutdown, operators can benefit from increased engine availability, more reliable performance, longer-lasting components and greater electrical output.

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A flexible fuel mixer is essential for biogas plants treating sewage sludge



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BGB recognised for high safety standards

Grantham-based global engineering specialist, BGB, has reaffirmed its commitment to the safety of its employees after becoming one of the only 30 businesses in the UK to achieve ISO 45001 accreditation.



The much sought-after health and safety standard is recognition of the high levels of compliance with regulations and the company's promotion of employee safety, health and wellbeing.

The firm's HSE compliance officer, Breeze Rowlands, believes the accreditation is testament to the efforts of the whole team of BGB. She said, "We are all very proud that BGB has achieved compliance to the new ISO 45001 standard this year. This was a truly a team effort and one that demonstrates the importance of effective health and safety management in our business. It fits with our strategy to encourage an open and honest culture, enabling our staff, clients and supply chain to continually raise the health and safety bar at BGB.

"We will continue to eliminate risks in the workplace and strive to build a culture where quality, safety, health and the environment underpins the values of all stakeholders in achieving an incident and injury free environment."

T 01476 576280

UK AD and World Biogas Expo

Offering everything you need to know about anaerobic digestion (AD) and biogas, 2019's UK AD and World Biogas Expo, held at Birmingham's NEC from 3-4 July 2019, was a huge success, featuring the inaugural World Biogas summit alongside the traditional Expo and Awards. Attendance was up 8% on 2018's event, and it featured five new dedicated theatres and an opened-up show floor. This allowed for even greater interaction between visitors, speakers and exhibitors, who all gave exceptional feedback.

The show's popular seminars, engaging displays, business deals and great networking opportunities all combined to create an excellent experience for all who attended.

The Engine Room was constantly full, offering valuable insights into the intricacies of operating an AD Plant. What's more, the Future Farming theatre proved to be highly popular, offering advice on diversifying income and the best on-farm AD practice. There were also great sessions available at the Circular Cities and Food Waste & Water theatres.



The show will return next year from 1-2 July 2020 at the NEC, Birmingham, so be sure to book your slot. This is our pick of the best exhibitors from this year's show, listed here in alphabetical order: Alps Ecoscience, ARB Process Engineering Ltd, Atritor, BiogasJG, Crown Oil, Gen-C, HAHN Plastics, HoSt, Innolab CVBA, Konrad Pumpe GmbH, Protea & Rika Biogas Technologies. Further details can be found on this page and the next.

www.biogastradeshows.com

Portable analyser for siloxanes online testing

Protea (UK) offers portable Biogas and Biomethane gas analysers giving measurement of specific siloxanes, ammonia, VOC as well as bulk CH₄/CO₂ content of the gas. Protea can offer periodic on-site testing with the benefit of real-time results. On-site services include carrying out validation against NPL gas standards, ensuring the siloxane measurements are traceable (not feasible with manual techniques).

The analyser can be operated on-site by Protea engineers for short-term tests, or rented over larger timescales, with remote access and support from Protea's UK team. Protea offers consultancy and support on siloxanes removal processes, with multiple sample point test plans used to optimise abatement.

The Protea analyser range can be offered as a permanent online gas monitor, capable of measuring from multiple sample points (raw biogas, post-abatement, biomethane) with Protea's in-house experience providing the full integrated system. Analyser systems can be provided with ATEX Zone 1 and Zone 2 installation.



The Protea analyser range is certified against the MCERTS performance standard for emissions monitoring, ensuring quality of build. This also allows the analysers to be set up to measure emissions points on site from CHP engines, giving the flexibility of application that the only Protea can provide.

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Optimising biogas feedstocks

Are you a biogas plant owner looking to reduce your feedstock costs, improve the efficiency of your feedstock processing or to meet the rigid RHI sustainability requirements? Rika Biogas Technologies offers a number of options, centred around the Bioextruder, that can be applied to biogas plants to increase profitability and minimise feedstock costs.

The Bioextruder is a technology specifically designed to improve the biogas yield from traditional agricultural feedstocks, such as maize and whole crop silage, as well as allowing you to use other previously hard to digest substrate materials such as straw.

The Bioextruder is designed to optimise/increase the biogas yield by breaking down the lignin in the cell wall structure, allowing the bacteria to digest previously inaccessible material. This is achieved by mechanically compressing and releasing the material, causing the cell walls to explode, without the addition of heat into the system. Biogas yields from energy crops have seen improvements of up to 15% and biogas yields from straw at circa 400m³ per fresh tonne.



Rika Biogas Technologies provide turnkey solutions to plant operators and owners, providing an integrated system designed to your feedstock requirements. The company begins its customer process with consultation to gain an intricate understanding of the customer's needs. This allows Rika Biogas Technologies to find a solution best suited to their requirements, and ultimately provide a cost effective answer to the feedstock problems they may be facing.

For more information on Rika Biogas Technologies, see the details listed below.

Contact
T 01746 714704
www.bioextruder.co.uk

Bespoke processing plants specialists

Established in 2016 and based in Northern Ireland, ARB Process Engineering Ltd is a leading specialist in the design, manufacture and installation of new bespoke processing plants and repowering, retrofitting or refurbishment of existing AD Plants.

Boasting a team of qualified and highly experienced engineers, the company has, to date, been involved in over 40 biogas plants across the UK and Ireland, ranging from 150KWe to 4MWe.

This quantity of work involving biogas plants resulted in the formation of a separate in-house division, ARB Biogas, which provides design solutions to ensure clients' biogas projects are efficient & robust enough to meet the stringent processing requirements of the biogas industry.

Indeed, no two ARB biogas plants are the same, and the company's dedicated biogas team works across every stage of biogas plant delivery in order to offer a comprehensive service to its clients.



ARB carries a wide range of spare parts, pumps and Stallkamp agitators in stock and has engineers that are readily available to attend sites at a short notice.

Thanks to its quality of product, expertise, innovation and design capabilities, turnkey packages, and excellent aftersales service, ARB Process Engineering is the ideal choice for companies involved with Anaerobic Digestion (AD) Plants and Biogas Projects.

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

T +44 (0)28 8774 8042
info@arbprocessengineering.co.uk
www.arbprocessengineering.co.uk

Crown Oil supports the environment

UK leading fuel and lubricant supplier Crown Oil is supporting the environment and has recently invested £4 million in hydrotreated vegetable oil (HVO fuel). Crown HVO is a renewable and sustainable performance bio-based fuel that can be used as a drop-in replacement for regular diesel and gas oil.

HVO has been approved for use by a number of vehicle and equipment manufacturers. The fossil-free fuel reduces net greenhouse gas emissions by up to 90% and other pollutants such as particulates, SOx and NOx considerably when compared to regular diesel.

In addition, Crown Oil has partnered with German-based lubricant company, Addinol, to distribute its premium lubricant products into the AD biogas energy market. Addinol has a long track record of producing premium long-life lubricants and coolants for gas engines and has a wide range of OEM approved lubricants which can operate and protect the engine regardless of the quality of the biogas fuelling the engine.

At Crown Oil we believe sustainable sources are part of the solution to the current climate crisis and we want to encourage and enable businesses to take an active role in the renewable market, whether that be through producing or consuming clean energy.

T 0330 123 1444
www.crownoil.co.uk

Crown Oil Fuels and Lubricants

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- Bio Fuels
- Carbon Offset Fuel
- Red Diesel, DERV & Heating Oils
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www.arbprocessengineering.co.uk
+44 2887 748042 | info@arbprocessengineering.co.uk
36 Agharan Road, Newmills, Dungannon, Co. Tyrone, BT71 4HG

Recycled plastic products

For over 20 years the HAHN Group has been the European leader in the production of recycled plastic products. HAHN Plastics is part of the HAHN Group. On an area of about 220,000m² we manufacture and market over 2,000 products under the hanit® trademark. Using state-of-the-art technology and moulding tools, along with our technical expertise, we develop high quality, innovative products from recycled plastic.

Part of our hanit® industrial range is the hanit® Biofilter Raised Flooring System. Its longitudinal and transverse ribs of the system have identical dimensions and can thus carry loads in both directions.

Due to the described product advantages and material properties, the hanit® Biofilter Raised Flooring System is ideally suited as a ventilation floor or airflow surface in biofilter



facilities, which are used for deodorisation in numerous branches (waste processing, wastewater treatment facilities, compost facilities, chemical and food industry, etc).

The HAHN system offers the optimum solution since hanit® products are resistant to oils, alkalis, acids and micro-organisms. This is especially

important in areas where corrosion is a problem, as is the case in composting and waste collection and recycling facilities. Installation instructions and application guides are available upon request.

Contact
T +44 (0)161 850 1965
info@hahnplastics.com
www.hahnplastics.com

The Atritor Turbo Separator

As the AD industry has developed and grown, the Atritor Turbo Separator has become the workhorse for recovering packaged food content for waste-to-energy sites. Its design, durability and strength combine to give a one-step process to remove valuable organic food waste from its packaging with up to 99% efficiency for biomethane production.

Avoiding shredding or damage to the packaging any more than necessary means that plastics are kept out of the tanks clean and plastics clear of fraction. The efficiency of the separation means that secondary



processing is not required, reducing energy consumption. The Turbo Separator can operate as a stand-alone wet or dry system; water or other liquid can be added during or after the separation process as required.

The Atritor Turbo Separator

model range gives a choice of throughput performance to suit different sizes of application from 3 to 20 tonnes per hour of mixed packaged food waste.

With over 250 systems sold to site locations across the world including the UK, Europe, North and South America, Australia and Africa the system provides adaptability, ease of operation and with its unique design for low and easy maintenance and quickly interchangeable screens and paddles.

Contact: Mark Hulme
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mhulme@atritor.com
www.turboseparator.co.uk

Alps Ecoscience

Following the success of the UK AD & World Biogas Exhibition, Alps Ecoscience is continuing its roll out of the Bio-Organic Catalysts to the AD sector, as well as into the Wastewater Sector as well.

By reducing the amount of energy required for biological or chemical reactions to occur, the catalyst accelerates the reaction times dramatically, as well as solubilising the cellular structure of organic waste, increasing gas transfer rates, and making it easier for naturally occurring bacteria to digest organic substances.

Results on AD plants to date

have shown a large increase in the amount of methane produced, a reduction in H₂S and ammoniacal nitrogen, a stabilising of the FOSTAC ratio, and a reduction of odour in the digestate. Conversely, particularly for crop based feedstocks, there is a considerable reduction in feedstock volumes to produce the same amount of methane. In some instances, there has been an increase in the calorific value of the biogas produced.

In Wastewater applications, there is an increase in the amount of nitrogen & phosphorous removed, as well as a significant decrease



in power required in aerobic applications.

BOC products are non-toxic, non-caustic, non-corrosive, non-irritating, hypoallergenic, bacteria-free and biodegradable.

For further information, or to discuss a trial, contact Paul Foster at: paul.foster@rostinternational.com or call 07500 664477.

Innolab CVBA

Innolab CVBA is an independent environmental contract laboratory specialized in analyses for anaerobic digestion and waste water treatment. The laboratory is a spin off company of Ghent University and based in Belgium near Bruges.

With 15 years of experience & activities in a dozen countries it may be said that there is high level of knowledge and experience what gives a time advantage in problem solving. Also are results are available within 5 working days after reception of the samples.

Innolab has a BELAC accreditation and is ISO17025 certified what assures that analyses are performed at the highest quality standards and with modern equipment.

The services provided for WWT and AD can



be divided in 5 categories: composition determination of biogas, digestate, waste water and all types of biomass, determination of the methane potential (theoretical/biological), pilot testing for AD and WWT, inhibition testing and emissions measuring (gas leak detection). Innolab is next to the research and analyses part also providing the necessary consultancy to optimise their processes. The large scope of tests and the built up experience make that more than 300 AD plants maintain a maximal gas production.

Contact us for more detailed information:
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info@innolab.be
www.innolab.be

Desulphurisation with FeSfix

BiogasJG supports biogas producers in managing their desulphurisation process and improving their methane production. BiogasJG supplies additives that can be supplied directly into the digester as well as products that can desulfurize the biogas as an end-of-pipe solution. With the support of their partner laboratory in Slovakia, biological analysis can be done, and advice can be provided to improve the biological process and increase the methane production.

Our main product, FeSfix, is a nano powder based on iron oxide (FeO and Fe₂O₃) and contains valuable trace elements. FeSfix reacts with hydrogen sulphide (H₂S) in the digestate during the process of anaerobic digestion. The trace elements are nutrients for the microorganisms that will increase their yield on methane. BiogasJG can also supply additional, commonly used trace elements if needed, and can also supply enzymes in order to provide a one-stop-shop for biogas producers.

BiogasJG

With FeSfix-G, we recently started offering an alternative for active carbon as desulphurisation medium in filters. FeSfix-G is based on our regular FeSfix and can be supplied in different particle sizes to fit any active carbon size or form. After its use, FeSfix-G can be used as fertiliser and doesn't need regeneration, incineration or disposal via land fill.

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UK AD & World Biogas Expo is twice as nice for Gen-C

Gen-C engine support specialist Gen-C sealed TWO deals in two days at UK AD & World Biogas Expo. The company attracted hundreds of visitors to its stand thanks to the range of CHP engines and control panels on display.

On day one, Managing Director, James Thompson, secured a sale with Ripper AD for a 250kW Scania-based Sandfirden CHP engine. Day two saw a customer purchase a Motortech control panel featuring ComAp technology.

Visitors also saw Gen-C showcase its new biogas engine exchange programme.

Through its sister business LouwSon Energy Ltd, engine



Keith Ripper (L) and James Thompson (R) seal the deal

owners facing a major overhaul can exchange their existing CHP engine for a fully-serviced, zero-hours engine within just one week, saving up to 50% on the usual servicing costs.

As the exclusive UK stockist for Motortech, RS Motor and Sandfirden, Gen-C also offers one-off services of MWM, Jenbacher and all major gas engines, saving operators thousands compared with the lengthy, locked-in contracts offered by other service providers.

"The visitors didn't stop coming, creating a real buzz on our stand," said James. "It was great to catch up with familiar faces & make new contacts, but the icing on the cake was securing a major sale each day."

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www.gen-c.co.uk

Konrad Pumpe GmbH

Konrad Pumpe GmbH has over 20 years of experience in developing storing, processing and dosing equipment for biomasses. Our solid dosing units of stainless steel are especially developed for difficult substrate materials. Capacity volumes from 2.5-313m³ are available to suit your plant. Direct feed to digesters or downstream equipment such as crushing and liquid feeding systems are provided by our screw technology. Flexibility, future modernisation and repowering are our specialties.

T +49 2526 9329-0
info@pumpegbmh.de
www.pumpegbmh.de



HoSt: Total biomass energy plant solution

HoSt, headquartered in the Netherlands, is a major turnkey supplier of bioenergy systems. Offering a total biomass energy solution for the anaerobic digestion, combustion, and gasification of organic biomass and waste streams, HoSt successfully realised over hundreds of bioenergy projects worldwide. Just recently, HoSt signed the contract for its first biogas project in Japan.

The HoSt biomass energy plants "contribute to ensuring the success of a circular economy by producing renewable energy, solving waste management challenges,

and creating valuable end-products from organic waste," says CEO, Herman Klein Teeselink. The important focus is on the technological development and innovation of the processing of a broad range of biomass and waste streams.

Taking care of the entire process is part of the total solution that comprises: engineering, supplying, constructing, commissioning, and 24/7 service and maintenance. HoSt also performs feasibility studies, process analysis, process optimisation, laboratory tests, obtaining permits, and project engineering activities.



Together with HoSt's international offices and partners, and with a strong focus on research and development, our engineers are developing more and more waste-to-bioenergy solutions that are tailored to local customer requirements.

Get in touch with us:
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info@host-bioenergy.com
www.host-bioenergy.com



Enertechnos: Better electricity

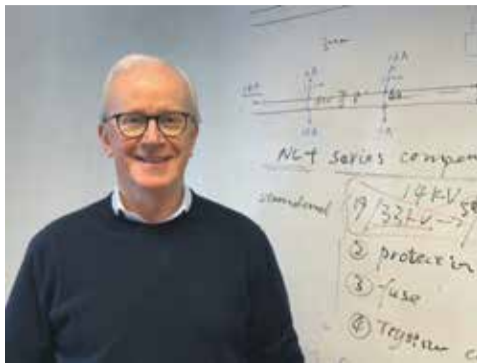
Sustainability Today is proud to announce that Enertechnos has been selected as our Sustainable Energy Company of the Month, for its pioneering work in increasing the efficiency of electricity distribution cables.

10% of all electricity generated globally is lost before it gets to the consumer, largely through inefficient distribution cables. "This is unsustainable," explained Dominic Quennell, Managing Director. "By 2050, there will be a 57% increase in our energy consumption from 2017, so we want to improve the accessibility of sustainable and renewable energy, and reduce how much is lost through transmission, making the delivery of energy more sustainable and helping towards the decarbonisation goal."

Dominic established Enertechnos in 2014 with Gareth O'Brien, Operations Director, to develop technology to enable energy savings and improve green efficiency.

Based in Kingston, Surrey, the company works on an international basis to address this pressing global issue, and has developed its innovative Capacitive Transfer System (CTS) to help reduce the amount of energy lost through transmission.

"We secured an Innovate UK funded Research



Dominic Quennell, Managing Director

and Development programme, collaborating with Brunel University and The Welding Institute to carry out tests on the cable to prove it could deliver more power than standard cables. After five years of developing the CTS, we are now at the stage of putting the first pilot installation into the ground, which will be taking place in Q1 of 2020. This will be the cable's first live trial.

"We're a non-disruptive disruptor, to coin a phrase. What we're doing is a little different, but it looks like any other cable and can be produced in any cable factory – it is entirely compatible with other systems."



In the UK, 1.5% of CO₂ emissions are from system losses in transmission and distribution, and so Enertechnos is working to reduce this. The CTS uses less power from generation to consumption, making generation more cost effective and maximising the efficiency of the whole system. "The CTS provides benefits across the board," explained Dominic. "The main difference is that it is arrayed as a capacitor, and we are the first company to create a long, linear version to work as a cable."

Since its establishment five

enertechnos

years ago, Enertechnos has achieved steady growth and achievement, and last year the company signed its first licence agreement with the Italian company Tratos, and signed a letter of intent with Western Power Distribution. In the last 12 months, Enertechnos has also completed the first round of tests of commercially made cables.



"Up until 12 months ago, the cables had been specially made, so we now have a set of data from independent factories who have commercially manufactured the cables, reinforcing our findings from previous tests."

With its first pilot installation coming up in the next six months, this is certainly an exciting time for Enertechnos. "Once we've got data from our first live trial, we'll be working to get more Distribution Network Operators interested and expand into other countries. We're already in discussion with companies in the US, and want to grow our contacts throughout the world," explained Dominic.

"It's also worth mentioning that in the debate about electric technology, a key component is electric vehicles. By 2040, there will be no new pure diesel or petrol vehicles sold in many countries, and so we need the electrical infrastructure to support this development. It is going to be a major challenge, so our technology can help get the huge amounts of energy from generation to where it's needed."

If you would like to find out more information on Enertechnos' ground-breaking work, head to the website or get in touch using the contact details below.

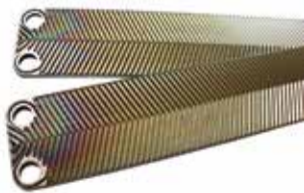
T 0203 865 6381
info@enertechnos.com
www.enertechnos.com



Heating, Ventilation & Air Conditioning News

Extra corrosion resistance for range of BPHEs

SWEP has launched a new range of brazed plate heat exchangers (BPHE) that keep tap water applications running efficiently for longer.



This is achieved with SWEP Sealix coating, a SiO based thin-film technology that increases BPHE corrosion resistance, protect against corrosion, fouling and scaling and increases durability.

The protective Sealix layer is applied to all inner surfaces of the heat exchangers in most of the HIUs and substations that encounter drinking water, to increase the lifetime and the operational safety of the entire system. This in turn reduces maintenance costs and unplanned downtime. The innovative self-cleaning coating minimises deposit formation and prevents contamination while protecting the surface.

SiO based coating is recognised worldwide and approved by the United States Food and Drug administration, the European Food Safety Authority and the Japan Inspection Association of Food and Industry Environment.

Contact
T +44 (0)1235 838635
www.swep.net

Azaneefreezer 2.0 set to revolutionise cold storage & food processing

Star Refrigeration's enhanced air cooled, low charge ammonia freezer package breaks UK 'Best Practice' performance guidelines, with an estimated energy cost saving of 66%.

Star Refrigeration's new generation of industrial pre-packaged low charge ammonia freezers have been improved and are setting a new benchmark in annual operating efficiency. Designed for food processing & temperature controlled storage applications, the ultra-efficient Azaneefreezer 2.0 technology is charged with 0.52 kg/kW of natural refrigerant ammonia and is expected to make businesses greener.

A study from the International Institute of Refrigeration showed average European energy consumption figures for chilled and frozen storage facilities across Europe were about 50% higher than the figure declared to be 'Best Practice' by the UK Government. However, recent energy performance data analysis for Azaneefreezer 2.0 indicates its annual energy usage is one-third of these 'Best Practice' guidelines.

Modern industrial refrigeration



systems typically contain energy efficiency component features, but these are rarely combined to deliver optimised system control. The Azaneefreezer 2.0 uses on-board PLC hardware and software to deliver optimised system efficiency.

The Azaneefreezer 2.0 also takes full advantage of the variable Vi capability of the compressor by using an air-cooled condenser and allowing the discharge pressure to drop extremely low in cold weather, thus improving the seasonal efficiency of the system. Additionally, Star's patented 4-way valve also delivers a rapid, efficient reverse cycle defrost, using less energy than electric or hot gas systems.

Contact: David Wallace, Sales Director
T 0141 638 7916
www.star-ref.co.uk

Waterloo Air Products plc delivers fresh air to new £50m sports hub

A £50m project bringing world-class sporting and leisure facilities to Warwickshire has received a new cooling and ventilation system from Waterloo Air Products.

Waterloo worked with designers to deliver a high-specification, energy-efficient scheme to cope with fluctuating levels of occupancy.

Ten months before it opened in April 2019, Waterloo produced a series of intricate and bespoke products to create the right aesthetics in the state-of-the-art fitness centre.

Special attention was given to the new indoor climbing centre to ensure the correct air terminal devices were installed to give a comfortable flow of air to users. Waterloo supplied high level nozzle diffusers to supply cool air in the larger areas of the climbing centre because these could be adjusted in any direction. These are used in areas where maintaining low noise level is important.



In some areas of the Sport and Wellness Hub, which is hidden away in a tranquil woodland area of the university campus, Waterloo had to create special finishes to its grilles and colour-match powder paints to blend in with the University's required colour scheme.

Luke Fearn, Mechanical Project Director at Derry Building Services, says, "From the design stage in 2017, to finally completing it in March 2019, we have been excited about this unique facility. Working with Waterloo was productive and provided us with exactly what we needed to bring this project to life."

T 01622 711500
rachel.roots@waterloo.co.uk

Photo: University of Warwick

Virtual reality first creates new world of training possibilities

Wastewater engineers working for Lanes Group plc have become the first employees in the world to experience team training using virtual reality in a 360-degree video theatre.

The company's staff can now use virtual reality (VR) to train together in an immersive digital world where they can test their skills in a safe yet challenging environment.

It is believed to be the first time in the world where VR has been combined with a 360-degree video theatre to allow groups of people to train together in an interactive space without having to wear headsets.

Lanes Group Director, Andy Brierley, said, "This is a game changer in the way we can train our colleagues, including wastewater



engineers who often have to work in potentially-hazardous environments.

"Combining VR with 360-degree video allows us to use cutting-edge gamification techniques to train groups of people, which is both powerful and essential because of the way we work in teams.

"We are already calling the VR modules we're creating training games, reflecting their interactivity and the way they draw on digital gaming techniques to increase engagement and enhance learning."

In 2017, it invested jointly with Thames Water in the Igloo video theatre, to introduce a new, more immersive, approach to training. It was the first time an Igloo had been used for training.

VR now adds a powerful extra dimension. Lanes challenged VR agency Myriad to find a way to integrate an Oculus Rift VR headset with software controlling the Igloo's projection system.

Contact
T 0800 525 488
www.lanesfordrains.co.uk

New contract for Bluewater Bio

Further to recent contract wins in its three strategic global locations, Bluewater Bio Limited, a leading provider of treatment solutions to the water industry, has been awarded a US \$36.5 million contract with the Ministry of Works of the Kingdom of Bahrain to further upgrade and expand the Tubli wastewater treatment plant, which is the largest in the country, serving a population equivalent of c.1.4 million. Bluewater Bio will be responsible for all aspects of engineering, acting as EPC contractor and technology supplier.

Contract duration will be 22 months. Following completion Bluewater Bio will operate and maintain this new plant alongside another HYBACS plant installed 5 years earlier. This new project marks the company's second contract with the Ministry of Works at Tubli Bay which will deliver a further 120 MLD uplift in treatment capacity, bringing the total treated to 230 MLD. The project is being funded by UK Export & Finance ('UKEF').

This follows the earlier installation of the company's HYBACS technology, which has exceeded the Ministry of Works' expectations for quality, reliability and performance.

Now that Bluewater Bio's technologies are referenced and other installations are under way in Saudi Arabia, it is the ambition of the company to continue its growth



strategy and thus use Bahrain as an important base and hub for the region.

HYBACS augments the widely-implemented activated sludge process, with the core benefit being that it enables an existing activated sludge plant to be rapidly upgraded for increased capacity and performance, by simple offline installation of SMART Units.

Contact: Curtis Calliva
T +44 (0)20 7908 9500
curtis.calliva@bluewaterbio.com
www.bluewaterbio.com

Letsrecycle Live Review Top 20

Get recycling at Letsrecycle Live

Letsrecycle Live is the UK's leading trade show for all things recycling, held this year at Stoneleigh, Coventry, from 22-23 May 2019. With some of the largest recycling, materials and machinery companies in business coming together to discuss new ideas, the show did not disappoint. Talks, seminars, demonstrations and much more were on offer, with exhibitors showcasing some

of the most innovative and futuristic products the recycling industry has to offer.

The show hosted both indoor and outdoor events, a plant and machinery zone, collection and transport zone, energy and alternative fuels zone, materials village, fire and safety zone, waste and professional services, live demo area,

conference theatres, ride and drive area, trucks in action, networking events, and the inn on the green, perfect for light refreshment after a day spent meeting and greeting.

Letsrecycle Live is an unmissable event for those that work within the recycling industry, and presents an opportunity to expand your business, and learn more

about your market like no other.

The show will return in two years' time from 12-13 May 2021 at Stoneleigh, Coventry. This is our pick of the best exhibitors from this year's show. Further details can be found on this page and the next two.

www.letsrecycle.live



New Duraflex Bin Range

The recent Letsrecycle Live Exhibition saw Container Components Europe launch its new DuraFlex Bin Range.

Throughout history, certain brand names stand out as industry leaders for quality, innovation or value of solution. For over 3 decades, Container Components Europe has designed, distributed and delivered bin lids for UK businesses solutions, and has expanded distribution



globally, now reaching all 5 continents. Where many have struggled, Container Components Europe has grown

– and with its acclaimed DuraFlex EN840 approved metal bin, accessories and other lid options, Container Components Europe now provides complete bin and lid solutions for all environments.

Ideal for the following sectors: Local Authority, Private Waste Management, Public Space, Commercial, Industrial Waste & Recycling.

Talk to the leading lid and bin manufacturer.

T +44 (0)1246 853696
enq@duraflexlids.co.uk
www.duraflexlids.co.uk



How to achieve clean streets with green tech

By Emmett Reidy, Business Development Director at Egbert Taylor (pictured)

Egbert Taylor



greener places to live.

Technology really can deliver clean streets. And, thanks to waste collection innovators such as Bigbelly, which has been reshaping the waste collection landscape for 10 years, the bin is also proving that it has a valued place in the digital age.

Discover how Bigbelly is providing its customers with a waste collection solution for the 21st Century. Contact the team on 01299 251333 or visit: www.bigbelly.com

The bin is no longer just a bin. It's now a multi-faceted communications device, monitoring instrument and a viable way in which to boost the sustainability credentials of an area. Well, that's the case with Bigbelly at least, which uses solar-powered compaction technology to increase the unit's capacity from 120 litres to 800 litres when full and provides an 'up-to-the-minute' overview of each and every unit's actual fullness level.

With the CLEAN platform collection teams no longer need to indiscriminately

empty or check bins located throughout towns and cities. Bigbelly simply lets collection teams know what needs to be emptied by alerting them via their phones or computer.

With the crews now knowing exactly what needs to be emptied prior to leaving the depot, teams can plan additional detail works into their collection routes and use the time saved to invest in other elements of street cleansing. Not only does this reduce carbon emissions associated with unnecessary journeys by waste collection vehicles, but also it makes areas safer, cleaner and

DMT Environmental Technology

Renewable energy strategies for sustainable development are gaining more and more popularity. One of the main reasons for this growth is the need to lower greenhouse gas emissions. We are increasingly looking at ways to recover waste resources and convert these into energy. In the UK, DMT was the first to provide a commercially sized biogas upgrading plant for the Poundbury project.

The development was constructed on land owned by the Duchy of Cornwall and is built according to the principals of Prince Charles.

With a sizable share in the global biogas market, DMT is one of the market leaders in



the biogas upgrading sector. Despite the political unrest in the UK and the proposed RHI finishing in January 2021, DMT continues to be successful in this market. One reason for



this is the launch of their Total Solutions Provider (TSP) which is brings a different approach to customers searching for value and cost savings for their projects. "Our TSP is strategic proposal aiming to guide our customers through the process of Upgrading. Starting from the AD outlet from to grid connection, saving them money every step of the way," says Stephen McCulloch, Business Director UK & Eire at DMT.

Contact: Marjolein Overbosch, Marketing & Communications
moverbosch@dm-et.nl

A&C Weber UK Ltd

A&C Weber UK Ltd was delighted to be at the Let's Recycle Live exhibition and conference in May. A subsidiary of Weber GmbH & Co KG of Haan, Germany, we exhibited examples of our range of high-quality 2- and 4-wheeled plastic wheeled bins that many of the UK's local authorities and waste management companies have tried. But many more should!

Weber has been manufacturing plastic wheeled bins for more than 25 years at its state-of-the-art production facility in Haan and is recognised throughout Europe, and further afield, as an innovator in product design and as a market leader in the quality of its products.

A&C Weber UK Ltd is approaching its tenth anniversary of operations in the UK and continues to develop its position as a major supplier of wheeled bins to both the public and private sector. With a large UK stock holding warehouse, it can react very quickly to a customer's needs. Whether it is to supply one 120 litre wheeled bin or a full articulated trailer of 1,100 litre wheeled bins, Weber can accommodate.



Our Business Development Managers have more than 45 years of combined experience within the industry and that, together with the quality of our products, gives our customers the reassurance they seek in a supplier.

T 0151 531 0033
F 0151 531 0835
www.w-weber.com
www.twitter.com/weberbins
Like us on Facebook, search for 'weber bins'

LDH Attachments

In the demonstration area at Lets Recycle Live and Demolition Expo, LDH Attachments exhibited a selection of precisely engineered products for the recycling & demolition sectors.

In particular, LDH Attachments have been working with Dehaco over the past 4 years to develop the Tera series of dust suppression units including the Tera All In One which includes a built in generator with Mitsubishi engine, a 2,200 litre water tank and a nebulizer, which replaces nozzles, for low maintenance and efficient water spray.

All machines come with adjustable water consumption, adjustable droplet size and automatic oscillation as standard.



Other innovative products in LDH's catalogue include Okada's range of demolition attachments including their latest TS-S steel shear which comprises of a curved blade for easy cutting in the air and a fixed pulveriser combined with a magnet for efficient

collection of rebar when crushing reinforced concrete.

Primarily LDH specialise in the supply and support of Dehaco's selector grabs which are routinely described as the most durable and reliable grabs on the UK market combining twin Parker rotation motors, cushioned cylinders, a large and thick slew ring for longevity and perforated Hardox 400 shells.

For more information on all of their products please visit the LDH Attachments website or stop by their premises in Hampshire to see their range of stock attachments and spare parts.

T 01420 481633
M 07734 910545
www.ldhattachments.co.uk

Tyre Boss enjoys a successful Letsrecycle Live

Glamorgan based OTR tyre supplier, Tyre Boss, attended the inaugural Letsrecycle Live at Stoneleigh this year to showcase its range of cushion solid tyres that are popular in the waste and recycling sector.

As the exclusive UK distributor for TY solid tyres, Tyre Boss has access to the most comprehensive range of solid tyre sizes and tread patterns for machines working in arduous applications including waste, mining, quarrying, steelworks and recycling. From the smallest forklift through to the largest wheeled loader there is a solid tyre option that will prevent flats and punctures, minimise downtime and improve cost of ownership.

Wayne Collins, Sales Manager for Tyre Boss, was impressed with the show, which was well-attended; despite the inclement weather conditions. Quality and quantity of visitors was excellent and many leads were generated. "The show attracts the perfect demographic for Tyre Boss. Manufacturers, dealers and end-users all come to see what is new, to view the machines



working in the live arena and to network with fellow professionals. It is the ideal event for us to explain what we do and the suitability of our tyres for machines in the sector!"

As well as TY Cushion solid tyres, Tyre Boss sources budget and premium pneumatic tyres for the construction, earthmoving and industrial markets.

For more information, please visit: www.tyreboss.co.uk or call 07484 303123.

Mardon Recycling Machinery

Mardon Recycling Machinery is a leading supplier of waste recycling equipment, servicing and consumables, continually providing high quality, innovative waste handling solutions throughout the UK. From a single piece of equipment to bespoke recycling machinery designed to suit customer requirements, Mardon works closely with its customers, understanding their business requirements and processes to provide the best possible solution to all recycling needs and environmental objectives.

The superior RamPack range consists of a variety of recycling machinery for all types of material including, but not limited to waste compactors, plastic balers, cardboard balers, mill size balers, semi & fully automatic balers and all associated equipment. The RamPack range helps increase recycling capabilities, enhance environmental credentials and save money. With a variety of financial options available including outright purchase, hire and rental packages, this enables customers to have the best equipment available with the latest technology at a cost that suits them.

Mardon uses its years of experience and in-depth knowledge of the waste industry to offer the best



experience, from initial consultations through to the on-going management of your recycling machinery. Mardon engineers are situated nationwide and will be there every step of the way through delivery, installation, complete on-site certified training and an unsurpassable aftercare service, giving our customers complete piece of mind.

T 01769 572191 or 0800 587 3028
sales@mardongroup.co.uk
www.mardonbalers.co.uk

NTM

NTM was established in 1950 in the town of Narpes, Finland. Products are characterised by innovative design, good payload and reliable performance, NTM is now the market leader in Scandinavia for the supply of RCV bodywork.

NTM-GB Ltd was established in the UK in December 2003 as a wholly owned subsidiary of NTM, with the aim to specialise in the supply of NTM refuse collection equipment to the UK market. The products, ranging from 3.5t to 32t with various configurations.

In 2011, NTM expanded the production capacity and product range NTM purchased LinkTip Kerbside. This gave NTM our own 25,000ft² production and installation facility, along with the NTM LinkTip Ltd portfolio, adding non-compaction Polybody plastic bodied vehicles to the range.

From 2015, further expansion began with the purchase of a 75,000m² site in Kidderminster, Worcestershire. This expansion has already



resulted in the creation of over 50 jobs.

NTM-GB has a vision to be the market leader of refuse and recycling collection vehicles whilst expanding on our exceptional customer service reputation. We value our customers and will endeavour to establish long-term relationships, supplying products which meet or exceed their expectations. We are today, and will be tomorrow, a customer driven business.

Contact
T 01902 365880
sales@ntm-gb.com

Impact Air Systems

The Let's Recycle Live! 2019 exhibition proved to be a huge success for global waste extraction and material separation specialists, Impact Air Systems, and was a fantastic opportunity to introduce its Zigzag Air Classifier (ZAC800) to the world of waste. Utilising density separation by the power of air, Impact's ZAC800 is specially engineered for processing of glass rich or highly abrasive sub 100mm material streams. It's constructed from carefully selected materials ensuring exceptional durability. The Zigzag cascade enclosure includes hardened chromium cast plates to greatly reduce wear from glass and has fewer moving parts than previous generations, reducing maintenance time and increasing overall performance. Impact received orders for six ZAC800's units in a matter of months and has recently installed at a well-known waste management facility

in the west of UK where it recovers glass and rigid plastics, resulting in a increased revenue from the recovered glass and a better RDF/SRF material formed from the removed contamination.

The ZAC800 Glass Recovery Clean-up System:

- ▼ **Input material** – MRF residue rich in glass, fibre, plastics, and small metal fractions
- ▼ **Capacity** – 10 to 15tph depending on bulk density and input material size
- ▼ **Input material size** – 0 to 60mm approx.
- ▼ **Glass purity** – >94% depending on input material composition

Benefits:

- ▼ Short term ROI (from 5 to 12 months depending on operational shift pattern and ZAC800 options)
- ▼ Higher income for recovered glass fraction



- and quality of residue which is better suited for RDF/SRF
- ▼ Savings on landfill diversion, transportation and handling costs
- ▼ Low operational and maintenance costs
- ▼ Fully flexible – can be incorporated into existing sorting systems/MRF's or as a standalone process

T 0116 244 8855
sales@impactairsystems.com

Our ethos remains the same, as in 2004

"The best way to make sure make that our business works, is to ensure our customers are working"

Mach-Tech Services is the UK's leading supplier of Industrial Shredding equipment and the sole distributor for award-winning Lindner-Recyclingtech shredders for the UK and Ireland. The versatile range of products consists of one Step, Primary, Secondary, Universal and Mobile shredders as well as processing systems for SRF and RDF. Mach-Tech's current range of multi



award winning machinery has no equal in today's marketplace.

That's not all. The reconditioning of used shredding machinery and other ancillary equipment at our premises allows us to offer for sale machinery of the highest standards, which you know will serve you well. With the added bonus of outstanding aftersales service and warranties on our reconditioned machinery, Mach-Tech Services is the ideal first and last stop for all your shredding equipment needs.

"Mach-Tech will be our first choice for any stationary, primary or secondary shredding going forward." – *Hamiltons Waste & Recycling*

The Lindner product exceeded our expectations in performance throughput and product quality; combined with the excellent back-up service from Mach-Tech we are more than happy." – *McGraths*

"Not only have Mach-Tech reviewed our needs and helped us with any adaptations that we required, they have also been spot on with their service." – *Equestrian Surfaces*

T 01706 838246
sales@machttechservices.com
www.machttechservices.com

Improving the quality of your waste stream

By removing inert materials, our systems will improve the quality of material streams such as WEEE, MSW, C&D, C&I, RDF/SRF, glass, trommel fines, compost, metals, plastics and many more.

Our systems will help you to sort waste streams and recover valuable material, saving you money and making you money whilst contributing to the circular economy.

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impact
air systems

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www.impactairsystems.com

Total waste management service

Waste management is ingrained in the DNA of Enviroquip, which is why over the last twenty years we have become one of the UK's leading suppliers of waste handling equipment.

Enviroquip understand the importance of minimising the volume of waste produced. Our dedicated team will work with you to understand your onsite waste handling processes and advise on the best equipment to aid efficiency, reduce waste production, improve recycling options and lower costs.

With hundreds of successful installations of balers, compactors and associated waste handling equipment across the UK and backed up by our own in-house team of mobile engineers and extensive workshop facilities, you can trust Enviroquip to provide the best advice, products and services, whatever your waste requirements.

As part of the Forward Waste Management group,



we are also able to provide a fully integrated, total waste management service, including general dry and recyclable wastes, hazardous wastes and industrial services.

Contact
T 0330 2233 084
info@enviroquip.co.uk
www.enviroquip.co.uk

Bradshaw Electric Vehicles

Bradshaw is the UK's largest manufacturer of electric vehicles for industry. We are proud of our reputation for producing some of the safest, most robust and versatile products in the sector.

Established in 1975, we work with customers to deliver electric transport solutions that can help to reduce costs and improve efficiency.

Our range includes electric road vehicles, utility vehicles, people carriers, tow tractors, load carriers, walkalong tugs and bin trailers which are supplied to a broad spectrum of household name companies for a variety of applications including waste movement, manufacturing and line feed,



logistics and distribution, hospitals, railways and airports. If a client has the need to transport goods, then we can supply a tailor-made vehicle to suit their requirements.

Bradshaw is also an authorised dealer for Club Car, an Ingersoll Rand brand, the world's largest manufacturer of golf carts and utility vehicles. Bradshaw is the sole UK distributor for Goupil, manufacturer of compact and

manoeuvrable road approved commercial electric vehicles. The new G4 and G5 models are available in 11 different configurations to meet the unique needs of municipal, industrial, delivery, service provider and other commercial customers.

Contact
T +44 (0)1780 782621
enquiries@bradshawev.com
www.bradshawev.com

Moovmor Engineering

Moovmor Engineering Ltd are leading designers and manufacturers of Waste Reduction Equipment. They have a comprehensive range of Balers and Compactors available.

At the recent LetsRecycleLive Show, held in Stoneleigh in May, they launched their new HX500 Series Baler. This is a Horizontal Semi Auto Baler with 4 Wire Tying in a very Sleek Design.

Heading up the Moovmor HX Semi Auto Baler Range is the HX400 and graduates upwards to the HX500, HX600 and HX800. The HX Semi Auto Baler Range can be fitted out with a range of options to suit Site requirements. Moovmor have designed their HX Baler Range to be easy to use – with User Friendly Interface. Health and Safety is of upmost importance and Moovmor Balers are fully CE Compliant, and also featuring the latest in Safety



Devices.

Below is a snapshot of some of the Products that Moovmor Manufacture – Showing the HX800 Semi Auto Baler alongside the BM100 Vertical Baler, and a Rolopak 30 Portable Compactor.

Moovmor have over 33 years'

experience in designing Waste Reduction Equipment and have a team of In House Design Engineers along with Technical Engineers and a team of dedicated Crafts People based in their works in Kildare, Ireland.

T 00353 45 521031
sales@moovmor.com

Donasonic

Donasonic are a small family owned business, with a passion for engineering and recycling. Our design team gained experience working for a major German market leader, and when the opportunity arose to start a UK-based family business, Donasonic was formed.

We provide a range of shredders and crushers designed for different purposes, and we specialise in designing bespoke systems for nearly any type of waste. Whether it is size reduction you have in mind, full scale Waste To Energy plants or bespoke waste problems – we can help turning the waste into a value adding product for your business.

From an idea to our first contract came very quickly, and we were fortunate enough to win some very successful projects in Thailand which gave



our team a lot of experience and allowed us to really understand the differences of waste internationally. We know that every client's needs are different, and every waste stream is unique, so we listen to the customer's issues and provide the best solution possible whatever the

requirement may be.

In our company we have a very multinational team and speak 14 languages – so support from our office is never far away no matter what country.

T 01302 247295
sales@donasonic.com

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www.moovmor.com

DELIVERING INNOVATIVE BALING SOLUTIONS FOR THE RECYCLING INDUSTRY

Established in 1975, Middleton Engineering is the UK's leading waste recycling baler specialist. The only British company to design, manufacture, install, maintain & service waste recycling equipment, our robust bailers can deal with all complex waste streams.



Our expert maintenance, stock of over 20,000 spare parts and engineering capabilities to machine any 'out of stock' or bespoke items mean we can refurbish your old machines to make them as good as new.

Middleton Engineering Delivering Innovative Baling Solutions for the Recycling Industry

SCAPA Horizontal Baling Process

01458 860264 sales@middletonengineering.co.uk
www.middletonengineering.co.uk

Middleton Engineering

Middleton Engineering celebrated 40 years of business in 2015. Having built a reputation for quality of work, excellent service and design innovation has established Middleton Engineering as a major supplying force within the industry, both nationally and in Europe.



We handle a wide range of projects from simple refurbishments, service contracts to large scale turnkey installations. The machines include fully automatic Twin Ram and channel balers for large output facilities and semi-automatic machines for smaller throughputs.

The entry level ME2R80 delivers an 80 tonnes press force, the range topping ME2R150 has a press force of 150 tonnes and delivers an average throughput of over 35 tonnes per hour.

Save 50% of strapping costs by using plastic ties opposed to traditional wire tying. Made entirely from recycled plastic. Eliminating requirements for wire removal prior to incineration.

Get full diagnostics & support direct from our factory. SCAPA ME Twin Rams have the capability to send a signal via SMS or email direct to your operators, informing them of any abnormalities. Increase your up time when switching products with dual tying technology.

T 01458 860264
sales@middletonengineering.co.uk
www.middletonengineering.co.uk

Shaft tank installation



As a result of adverse weather conditions, unintentional discharges can happen within sewer networks, meaning too much rainwater has entered the sewer from surrounding roads, houses and lands; or where rivers and watercourses overflow and back up the sewers and surrounding areas.

Water companies across the UK have committed themselves to investing in the improvement of infrastructure to improve our water supplies and to cope with unplanned weather events.

NMCN PLC were tasked with improving the sewer network that runs through the village of Kirk Hallam, Derbyshire to alleviate the risk of flooding to 15 properties within the village.

The scheme included the installation of an offline stormwater shaft tank, designed to house the overflow of the downstream sewer in times of heavy rainfall/stormy conditions. Using a Pulsar UltraTWIN controller, which offers a range of pump control functions NMCN were able to send signals from 2 x ultrasonic dB10 transducers which monitor the constant rise and fall of the level in the downstream sewer and in stormy conditions; the level of the shaft tank. When desired levels have been reached, the dB10 transducers send signals back to the UltraTWIN controller which in turn switches on the pumps, returning the water back to the sewer network.

Effective flow and level measurement are helping to ensure our water infrastructure is more resilient and working as effectively as possible, emerging problems are quickly identified and addressed, mitigating the threat of flooding and sewer overruns for the benefit of consumers and the environment.

Contact: info@pulsar-pm.com

Rapid ATP analysis in water



Promega has introduced Water-Glo, a new and unique tool to help analysts at water treatment plants, and in other industries where water quality is critical to a process, quickly and reliably detecting living microbes present in a sample. Water-Glo offers plant operators, engineers and water quality specialists a rapid, highly sensitive and flexible measurement system for monitoring microbial contamination in, for example, freshwater, process water, seawater or waste water samples.

Promega is the established global leader in adenosine triphosphate (ATP) detection – the 'energy currency' of all living cells that degrades quickly when a cell dies. Its Water-Glo kits use novel technology, employing a lysis and detection reagent combination. Formatted for lab use in a 96-well plate format, Water-Glo kits and companion instrumentation can quickly analyse ATP levels in up to 90 samples in less than 90 minutes.

ATP is emerging as a powerful addition or replacement technology for gaining a better understanding of microbial populations in complex water ecosystems. Users get clear insight into how many live bacteria are in a sample and can predict how they might impact on water quality and process performance. In addition to public health concerns, bacterial growth causes issues such as biofilm formation (biofouling) and microbial-influenced corrosion (MIC) within pipelines and storage tanks. Early detection can prevent problems leading to contamination, downtime and costly repairs.

T 023 8076 0225
www.promega.co.uk

Climate change triggers drainage management rethink

Climate change caused by global warming is contributing to facilities and property managers recognising the value of preventative drainage maintenance to prevent highly damaging flooding. The Lanes drainage team in Newcastle upon Tyne is among Lanes depots across the UK that are receiving more enquiries about planned and preventative maintenance (PPM) work on drainage systems.

The Port of Seaham, based at Seaham Harbour (pictured) in County Durham, is one business that has always had a PPM for drainage in place. Lanes is contracted



to visit the port every quarter to inspect and clean surface and foul drains, and empty two fuel interceptors.

The port, operated by the Victoria Group,

can handle ships up to 8,000 tonnes and offloads significant amounts of dry bulk goods, including steel and timber. It has 7.5 acres of covered warehousing, and 1.5 acres of purpose-built segregated open storage.

In other business sectors, Lanes' PPM drainage service has contributed significantly to reducing emergency callouts for drainage problems, including toilet blockages and sewer flooding.

As part of a PPM drainage service, Lanes will first carry out a comprehensive CCTV drainage asset condition survey of a site's

foul and surface water drains and sewers.

The data gathered informs decisions about the level of service needed. It also identifies if remedial work is needed and allows the client to prioritise such work to control costs.

Lanes can then deploy a wide range of the latest, most effective specialist drainage equipment, operated by trained and qualified drainage engineers, to carry out work safely and sustainably.

T 0800 525 488
www.lanesfordrains.co.uk



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www.dragondrilling.co.uk

Sorting the solution

Coral Products (Mouldings) Ltd are part of the Coral Products PLC Group and are a manufacturer and distributor of plastic injection, extruded and blow moulded products into a diverse range of sectors including recycling, food waste, food packaging, personal care, household and automotive

We have created a product to change the face of recycling. As demographics change, targets increase and councils seek recycling sorting solutions, Coral Products (Mouldings) Ltd's new product the MBRS is the solution. The Multi Box Recycling System will support deposit return schemes, and the new targets for

recycling that are evolving for councils.

Why is it the solution?

1. Innovative design, with elements in mind.
2. Ability to be stored inside or out with roll off design to prevent water entering the dry recyclables.
3. Injection moulded plastic, in quick and easy interchangeable interlocking parts, utilising recycled material, enabling ongoing maintenance with part replacement.
4. Changeable units.
5. Ease of movability.
6. Lightweight.
7. Meets WRAP standards.

Due to the need for change and consistent budget costs for councils and local authorities, the MBRS's design is the answer. As a plastics company with a conscience, investing in recycling by opening our own recycling plant in 2019, creating new products (23 litre food waste caddy and 55 litre kerbside collection box, proven to be the lightest in the market) and achieving 30 years within British manufacturing. We believe that our products and circular economic strategy are the change that recycling needs.

sales@coralproducts.com
www.coralmouldingsltd.com



MBRS Prototype

Eddy Current Separator

The University of Birmingham has purchased a metal separation module from Bunting-Redditch, to be used in research to determine the recovery and recycling capabilities of a wide range of materials.



The University of Birmingham has purchased a laboratory-sized Eddy Current Separator and Drum Magnet modular system, to be used by students and professors undertaking research at the university to determine the recovery and recycling capabilities of various materials.

Bunting is one of the world's leading designers and manufacturers of magnetic separators and metal detectors for the recycling, quarrying, and mining industries. Manufacture of its extensive range of metal separation and detection equipment takes place at its Redditch plant, just outside Birmingham, UK.

The laboratory Metal Separation Module comprises a Vibratory Feeder, Drum Magnet and Eddy Current Separator. The Vibratory Feeder ensures an even feed of material feeding into the high strength Drum Magnet. The Drum Magnet attracts and removes strongly and weakly magnetic materials. The remaining non-magnetic fraction falls onto the belt of the Eddy Current Separator.

An Eddy Current Separator comprises a conveyor revolving around two-pulleys. The head pulley has a non-metallic shell housing a high strength Neodymium Rare Earth magnetic rotor. The magnetic rotor is spinning at a significantly higher speed than the non-metallic outer shell.

T +44 (0)1442 875081
sales@buntingeurope.com
www.buntingeurope.com

CORAL
PRODUCTS (MOULDINGS) LTD

www.coralmouldingsltd.com

Celebrating 30 Years in British Manufacturing

Coral Products (Mouldings) Ltd
'Plastics Company with a conscience'

Tel: 01942 272882 | sales@coralproducts.com

Heritage Square Bin for on-street recycling

With more than six out of ten of us now describing ourselves as 'committed recyclers' on-street recycling needs to gain space to meet public needs. To help in this process that turns a waste liability into valuable assets, Leaffield Environmental is launching its new Square Heritage Recycling bin range to assist waste stream segregation 'in the street'.

Proven and popular with Local Authorities, Parish Councils and urban landscape designers alike, the Heritage Square Bin can now be designated for the collection of specific recycle streams. WRAP compliant, colour coded inserts with their 'propeller' apertures, along with explicit colour coded graphics, help identify the specific waste that should be deposited. Apertures can also be blanked off for bins to be used against walls.

One of the most durable bins available, thanks to the double wall construction throughout the entire bin, the Heritage Square's outer walls now sport ridges to prevent unwanted fly posting. With a 110 litre capacity, diagonal hinged, slam-shut door for easy



access, (no lifting required), the Heritage Square Recycling Bin will help meet the need for on-street recycling for many years to come.

Contact
T 01225 816541
comms@leaffieldenv.com
www.leaffieldrecycle.com

J&G ramps up recycling solutions

J&G Environmental has boosted its waste management capabilities for printers with new plastic disposal technologies.



With companies under increasing scrutiny regarding their sustainability practices, J&G Environmental is ready to help more companies to dispose of their plastic waste responsibly after investing in new recycling technologies.

Recycling manager, Jason Goddard, explains that in addition to helping the planet, adopting green techniques to keep plastics out of oceans and landfill sites will have crucial reputational benefits for print businesses.

"When printers are putting contracts together to get new work, more often than not, they need to prove they are using a responsible waste management company and are recycling as much of their waste as they can," he said.

"You would be surprised how many companies still have 40 yard skips on site and are just throwing all of their waste in there, but a lot of this material can be recycled, and this is where J&G Environmental can help.

"Print companies are looking at our services more and more, because they have ticked all the main boxes and they now need to take it a step further to see what else they can do. They need to dig deeper in their skip to see what they can recycle."

J&G Environmental recently acquired an Avery Weigh-Tronix ZM510 weighbridge for logging weights of different materials, and a Rapid 8045 granulator for preparing waste plastic ready to be made into new products.

Customers have their plastic waste collected and transported to the company's main facility in Blandford Forum, Dorset, where it is ground down into granules that are then packed up for re-use.

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Utility Week Live

Utility Week Live is the UK's leading utilities industry exhibition, brought about by the experts at Faversham House Ltd, who are behind the leading business media brands in the gas, water and electricity industries.

The annual event is attended by over 3,000 senior utilities professionals, including energy retailers, gas and electricity network operators, water and wastewater companies, and water retailers.

Building on the theme of Disruption from 2018's

show, Utility Week Live 2019 explored the theme of Transition in all its many forms.

This included the transition to sustainable and flexible energy and water systems, the digital transformation, the IoT and the use of AI, and the numerous business model transitions which are taking place across the industry.

Taking place from 21-22 May 2019 at the NEC, Birmingham, 2019's event welcomed thousands of visitors, hundreds of exhibitors and hosted



six simultaneous content programmes, making Utility Week Live 2019 an unmissable exhibition

for all involved in the utilities industries.

The next event will be held from 19-20 May 2020 at Birmingham's NEC, and will focus on the theme of The Utility of the Future. This is our pick of the best exhibitors from this year's show, listed here in alphabetical order: Asphalt Solutions, Cloud KB, Evergreen Water Solutions, Pollywood Ltd & S&C Electric Company. Further details can be found on this page.

www.utilityweeklive.co.uk

Asphalt Solutions introduces the Ulti-Mate

The Utility Week Live was a great opportunity for Asphalt Solutions to launch its latest innovation manufactured by the award winning RSL, which builds low volume asphalt recycling and heating technology.

The big focus for the Ulti-Mate was to manufacture a lightweight, versatile & fast mixing machine. This then allows asphalt materials and other ancillary equipment to be easily carried to site. The R&D department had a direct focus on the weight reduction and achieved this by utilising aluminium and composite materials.

The Ulti-Mate is a 650kg gross weight piece of machinery that easily retrofits onto your existing flatbed vehicles or is indeed towable, giving the ability to fully hot recycle asphalt. It provides capacity for a contractor to carry a wide range of materials, iron work/lids and equipment to the job site, so is a one stop shop.



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For a demonstrations or more information, please visit: www.asphaltsolutions.co.uk or call 01530 249266.

Cloud KB is launching a new partnership with Zebra Technologies

The collaboration further improves our reputation for having the fastest application on the market for meter commissioning.

The native integration between uMESH and Zebra handheld devices allows for significantly faster and more accurate commissioning. We are already leading the industry in reducing commissioning revisits.

Cloud KB is reducing complexity by changing how the energy industry communicates. Our Cloud-based meter asset tracking system, uMESH, is more flexible, more user-friendly, and more cost-effective than any other system on the market. We have reduced the average commissioning time for SMETS2 to 2 minutes, 30 seconds.



uMESH works with all leading DCC Adapters, supplier interfaces, & workflow & job scheduling systems. Its purpose-built software gives Meter Operators & Asset Providers a single management system for all gas and electric industry flows with full inventory lifecycle management and built-in Cloud analytics for reporting.

To find out more, call Kevin Bird on 0203 538 0911 or email: kevin@cloudkb.co.uk

S&C Electric Company

S&C Electric Company is a global provider of equipment and services for electric power systems. Founded in 1911, the Chicago-based company designs and manufactures switching and protection products for electric power transmission and distribution. The European division, located in South Wales, reaches across Europe, the Middle East and Africa.

S&C continues to advance new solutions for electric power delivery systems as the electric grid undergoes transformative change in the 21st Century. Utilities are working to integrate renewable energy sources, address peak loading issues, and manage the needs of electric vehicles. Looking at

an increasingly complex and dynamic grid, S&C is working closely with its electric utility customers to understand their electric grids and the business challenges they face, and then innovating solutions to address their power-delivery challenges.

In addition, S&C offers a wide range of engineering, laboratory, and testing services for electric utilities and commercial, industrial, and institutional power systems.

S&C provides solutions for customers worldwide. The company has engineering offices and manufacturing facilities in Chicago, Illinois; Franklin, Wisconsin; Alameda, California; Duvall, Washington;



S&C ELECTRIC COMPANY

and Orlando, Florida. S&C subsidiaries operate in Toronto, Canada; Wales, United Kingdom; Melbourne, Australia; Suzhou, China; Curitiba, Brazil; and Aguascalientes, Mexico.

Contact: Jonathan Hopkins, Sales Director EMEA
T 01639 820558
jonathan.hopkins@sandc.com
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Tertiary cloth filter at Crewe STW for United Utilities

Evergreen Water Solutions (EWS) was the selected bidder by LIMA (Laing O'Rourke/Atkins) with a complete commercial package of design, installation, commissioning and the aftercare package for the mechanical and electrical works including the filters, pipework, panels and access steelwork.

By December 2019, the tertiary solids removal plant will be optimised by EWS process engineers to remove sufficient solids (TSS) in the final effluent such that the new total phosphorus (TP) consent of 0.5mg/l average and iron of 4mg/l (95%ile) can be achieved (Phase 2).

EWS, along with its manufacturing partners, adopted for off-site construction techniques in a bid to improve quality, reduce health and safety risks during installation, reduce capital costs,

reduce waste and speed up delivery of project. The solution required 4 (No.) of MITA



MSF 24/120 filter made up of 24 (No.) cloth filter discs with a total filtration area of 450m²/filter.

Contact
T 01455 639760
info@evergreenengineering.ie

Pollywood, very strong, very light and very low carbon

Pollywood Ltd develops low carbon products which solve industrial problems. Our unique, patent pending manufacturing method makes very light and strong engineered wooden tubes using Forestry Stewardship Council (FSC) approved supplies. The FSC standard requires that at least two trees are planted for each tree felled. Our raw material comes from high productivity Finnish forests. Rapidly growing newly planted trees absorb CO₂ especially during their first ten years.



Steve Crighton on the right, standing on a sample of Pollywood with a wall thickness of 2.5mm of wood, with a member of the Northern Powergrid Innovation Team

The Pollywood Utility Pole (PUP) is our first product. The PUP is being developed at the invitation of The Energy Innovation Centre (www.ukeic.com) and with the financial and technical support of the electricity distributor for the North East, Yorkshire and northern Lincolnshire, Northern Powergrid (www.northernpowergrid.com). It answers the challenge to develop a replacement for the enduring, but toxic creosoted electricity line pole.

This pole is much more than a like for like replacement. Pollywood Ltd's system gives electricity distribution companies consistent assured performance. The Pollywood process enables the range of poles required to be massively reduced, because they are made to a tight specification rather than being grown. The process has the flexibility to manufacture and deliver any length of an agreed specification of pole in 7 days from order. The method of manufacture protects the poles from attack by fungus, insects and damp, in an



eco-friendly way that does not use any chemicals which can leach dangerously into the environment.

Traditionally, one tree can only create one pole. Pollywood will make many poles from each tree enabling 90,000 trees a year to be saved or used for another useful product. The reduction of the raw material needed by up to 85% will also see a similar reduction in the CO₂ and NOX produced to ship the materials from mainland Europe. The Pollywood process uniquely uses no water & very little electricity.

Two linesmen can easily carry the very strong light pole. The lightweight pole will bring other advantages for example heavy lifting gear will not be needed for restricted urban locations and in the countryside.

Pollywood Ltd will be in the Innovation Zone at the LCNi exhibition and conference at the Scottish Exhibition Centre, Pacific Quays, Glasgow on the 30th and 31st October.

What problem can we work with you to solve, as we have with the electricity industry? Contact us at: www.pollywood-natural.com



Iain Miller, Head of Innovation at Northern Powergrid, and Andrew Webster, our project manager, holding a sample

Westgate's circular economy initiative received positively within construction

Westgate is proud to announce our Hoardfast sustainability promise. Centred around the ethos of relocate, reconfigure, reuse and recycle, it aims to minimise waste during construction projects and the money that is generated from the sale of the recyclable internal hoarding panels is donated to the Marine Conservation Society (MCS).

Working extensively within the construction and fit out sectors, we appreciate the growing need for contractors to find cost-effective ways to reduce waste on their projects, and through our sustainability promise, as well as following guidelines on circular economy, we can help Hoardfast customers deliver on those targets.

Hoardfast is a modular screening system used to create temporary internal site rooms, welfare spaces and partitions, and is completely reusable across multiple projects or relocatable during phased project work. At the end of each project, Hoardfast items are removed from site



and returned to Westgate, reducing waste for the customer.

Made from PVC, our sustainable panels are manufactured from up to 85% recycled plastic, on reaching the end of their usable life, panels are crushed down and recycled to manufacture new panels and other plastic items. Funds generated from the sale of unusable panels are then donated to the Marine Conservation Society, as well as other UK charities.

Caroline, Corporate Partnerships Manager, MCS, said of the partnership, "We are delighted that Westgate Group has chosen to support the work of MCS through recycling its end-of-life Hoardfast panels. This is exactly the sort of circular economy initiative which we would like to see more companies adopting, to reduce the amount of plastic waste generated throughout industry."

With reducing the amount of single use plastic, a

big concern for those working in the commercial and industrial sectors, we're proud to do our bit to support such incredible work being undertaken by MCS. The Marine Conservation Society is the UK's only dedicated marine charity working solely to secure healthy seas, shorelines and marine wildlife.

David, Marketing Manager, Westgate, said, "By providing an internal hoarding system that is completely reusable and recyclable, we aim to support companies looking to reduce the amount of waste on fit out and construction projects and deliver on their targets for sustainability. Creating funds from our recycled panels means that by using Hoardfast, together we can support a charity that works to reduce the impact of plastics on our environment."

You can learn more about our sustainable hoarding product here at: www.westgateuk.co.uk/hoardfast-pvc/sustainability



Sustainability and Denso in Dublin project



'Sustainability' in business today is often defined as the "ability to sustain, or put as the capacity to endure". This was the case in the now completed redevelopment work on the old Dublin Central Bank building, where offices, conference space, shops, etc, are now operating.

The now growing sustainability factor was utilised by DBFL Structural Engineers in Dublin and Winn & Coales (Denso) Ltd – part of the worldwide Winn & Coales International Ltd. In discussion they decided to remove the existing wrap that had been there since the 1970s and apply Denso Tape to 2,500m of supportive 40mm Macalloy bars, thus providing long term corrosion protection. Denso Self-applied PVC was then used as an outer wrap before fire protection and cladding was applied.

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Global Offshore Wind 2019 Review Top 5

The premier offshore wind event

The premier offshore wind event, Global Offshore Wind, took place from 25-26 June 2019 at ExCeL, London, and offered an excellent platform for businesses to showcase their offerings.

As the UK's largest dedicated offshore wind event, it offered two packed days full of political keynotes, expert panels, debates, procurement tenders, sector deal updates, disruptive innovation, business partnering, international pavilions, inward delegations, and much more.

The UK is the most exciting market for offshore wind in the world, and this event brought the sector to life, featuring industry leaders from across the sector and a range of keynote speakers.

The conferences included sessions on pioneering technologies, the global energy transition and the shift away from fossil fuels in response



to climate change, looking at how offshore wind can help to accelerate decarbonisation. There were also sessions looking at the political, legal and commercial impacts of Brexit.

With 3,000 delegates from 40 countries, including 200 speakers offering over 50 hours of sessions, Global Offshore Wind 2019 was an unmissable event, which also featured an exhibition hosting 150 companies.

The next event will be held from 16-17 June 2020 at Manchester Central, Manchester. This is our pick of the best exhibitors from this year's show, listed here in alphabetical order: Ceteal & StormGeo Ltd. Further details can be found on the right.

Contact
<http://events.renewableuk.com>

StormGeo Ltd

StormGeo Ltd, formed in 1997, has quickly grown into the world's largest commercial Weather Insights provider.



StormGeo covers a number of business verticals around the world from one of our 27 offices in 19 countries. Here in the UK, our head office is in Aberdeen predominantly serves the Shipping, Oil and Gas, Aviation and Renewables industries.

Focusing on Renewables, and, in particular, Offshore Wind – a market we have supported since the early days of commercialisation.

Our first live forecast was for the Robin Rigg Windfarm back in 2008 and since then, our reference list has grown to several hundred projects throughout the North Sea, Baltic Sea as well as emerging markets in the Far East, Poland and the US.

Our key focus is the provision of Weather insights in the form of Hindcast Analysis, Situational Forecasting and supplementary Advisory Services. We pride ourselves in our industrious and creative mindset, having a thirst to succeed and provide the absolute best service we can to our customers.

We very keenly support the UN Global Compact, where we are lucky to be represented on the Sustainable Ocean Action Plan board. The aim is to help deliver the dreams of a sustainable future for our oceans through active participation.

T +44 (0)1224 506395
sarah.miller@stormgeo.com
www.stormgeo.com

Ceteal

Ceteal is a structural engineering company providing designs and analyses in the Marine Renewable energy sector & Civil engineering. The engineering and draught teams benefit from an offshore background of over 25 years, which allowed them to work with all types of foundations in steel, concrete and hybrid; for bottom-fixed and floating structures.

As the international market grew, their experience grew as well, deepening their knowledge of worldwide seas and oceans with studies in Taiwanese, Japanese and Canadian waters for both offshore wind & tidal energy. Most recently in its own country, Ceteal has partnered up with COWI for the design of the monopile foundations of Saint Nazaire's park, for EDF Renewables.



Another of their partnerships involves working on GE's Haliade X – 12MW with Gavin & Doherty Geosolutions (GDG). Over the past few months, GDG and Ceteal have been focusing on developing foundations optimised for GE's new 12MW turbine.

Aside from international projects, Ceteal has also been developing its own solutions to help with the progress of the offshore wind industry: Rockmat, foundation used as an interface between soil and superstructure for rocky and uneven seabed; Axinbase, innovative GBS foundation; and XCF, Ceteal's solution for offshore floating wind turbines.

www.mareal.eu/en/who-we-are/ceteal

Environmental Testing & Monitoring News

Eltek Air Quality Monitor AQ112

Eltek in collaboration with the UCL Bartlett Institute designed the AQ112 specifically with schools and colleges in mind but it works just as well in any enclosed public space.

Poor quality air in our towns and cities is well publicised. What is far less publicised however is the poor quality of the indoor air in many of our schools and colleges, places of work and other public buildings. Contaminants in the indoor environment are more than 1,000 times more likely to

be inhaled than outdoor air and can be up to 10 times more polluted than outside air.

Children are particularly vulnerable to poor indoor air quality as their lungs are still developing. Their airways are smaller, so inflammation caused by pollution can cause them to narrow more easily than in older people.

With its new AQ112 Air Quality Monitor Eltek can assist educate people on the

quality (or lack of it) of the indoor air they breathe, Eltek helps people understand what the quality of the indoor air actually is. A single box monitor, that when used as part of the Eltek GenII wireless data logger system, can accurately measure and record:

- ▼ CO₂ – Carbon Dioxide
- ▼ Relative Humidity
- ▼ Temperature
- ▼ CO – Carbon Monoxide
- ▼ NO₂ – Nitrogen Dioxide
- ▼ O₃ – Ozone

- ▼ VOC – Volatile Organic Compounds
- ▼ Particulates (Air flow 0 to 5 L/minute)
- ▼ Sound Pressure Level

The perfect solution for constantly monitoring air quality anywhere there is a duty of care obligation to building occupants.

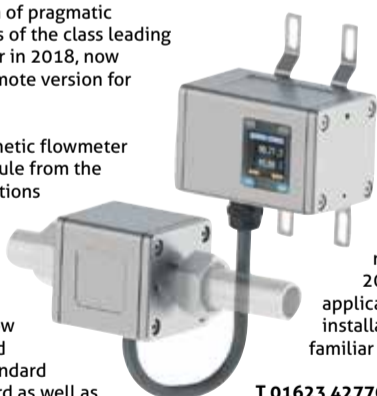
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Product developments for 2019

For 2019 the KOBOLD Group continues a program of pragmatic instrument development with enhanced editions of the class leading MIM electromagnetic flow meter, introduced earlier in 2018, now featuring connection sizes from ½" to 2", and a remote version for process temperatures up to 130°C.

New for 2019 is model MIS, a full bore electromagnetic flowmeter featuring the unique and versatile electronics module from the popular MIM instrument, allowing for all flow directions due to the indexing programmable digital TFT display screen. As with its instrument parent, model EPS/DMH, the cast steel bodies will be available with a choice of hard rubber, soft rubber, PTFE/PFA, EPDM, and ceramic liners. Also for 2019, both the MIM and the MIS instruments now feature IO-Link, a useful and increasingly requested feature, especially for Industry 4.0 compliance. Standard analogue, frequency, and pulse outputs are standard as well as alarm, dosing, and totalising features. The MIM however remains



T 01623 427701
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unique with the inclusion of a built-in Pt1000 sensor.

With elements borrowed from the MIM and EPS/DMH models, the new MIS model is clearly a very competent full bore electromagnetic flowmeter, suitable for a wide range of standard applications, and price competitive too. However, where a higher technical specification is required, such as HART® or ATEX, or even larger pipe sizes up to DN1200/ANSI 48", the EPS model with revised UMF2 electronics launched in 2018 to replace the DMH model covers all bases. For applications where insertion is the preferred method of installation the revised PIT model is ideal and utilises the familiar UMF2 electronics.

Lührfilter installs new abatement plant

Lührfilter recently installed & commissioned a new abatement plant to treat waste gases from a clinical waste incinerator in Surrey. The new fully automated system takes gases from the incinerator at up to 8,000°C, while maintaining a constant pressure within the incinerator.

The gases are cooled to 1,800°C using an evaporative cooling system. The hot gases enter the quench vessel and are mixed with aerated water injected by cooling lances. The exit temperature is maintained constant through monitoring and adjustment of water injection rates by inverter controlled run/standby pumps.

The exit temperature was selected as the optimum reaction temperature for the dry



sorption reactor. The reactor comprises a specialist additive dosing system & gas conditioning rotor. This allows the incinerator gases to be treated with an adsorption additive, which removes acid gases such as

SO₂, HCl and HF, plus heavy metals & dioxins. The additive was a specific blend of sodium bicarbonate, activated carbon and hydrated lime. The blend ratios & dosing rates were calculated to achieve the reduction of acid gases and other pollutants below strictly enforced emission limits.

Following the additive system, a bag filter with PTFE media provides separation of particulate from incinerator gases. The clean gases are then transported to the exhaust stack by inverter controlled fans (run/standby). A new compressed air station was also within the scope of supply.

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